AT

FACTS AND FIGURES of the AUTOMOBILE INDUSTRY

1924
EDITION

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NATIONAL AUTOMOBILE
CHAMBER OF COMMERCE
366 MADISON AVENUE, NEW YORK, N.Y.

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NATIONAL AUTOMOBILE CHAMBER OF COMMERCE
366 MADISON AVENUE, NEW YORK, N. Y.
Cable Address: Nautomerce

New Records in 1923

Motor Vehicle Production
4,086,997

Bank Savings
$18,373,062,000

Residential Buildings
$2,757,084,300

Life Insurance
$7,755,000,000

Pig Iron Production (Tons)
40,361,146

Rail Carload Shipments
1,277,318,731

1923 was a year of new records in several industries and forms of savings. The figure for buildings above is for 27 States on which comparative figures are available. The insurance total is for ordinary life, new business.

1923

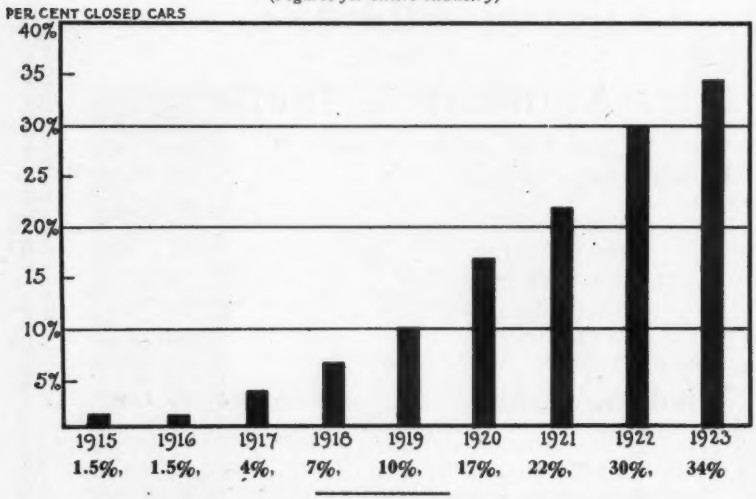
in the

Automobile Industry

Production	**4,086,997**
Number cars	3,694,237
Number trucks	392,760
Open cars	2,434,360
Closed cars	1,259,877
Per cent closed	34%
Wholesale Value:	2,276,399,270
Cars	~~$1,693,808,282~~
Trucks	311,144,434
Parts sold by motor vehicle factories	247,443,541
Total	~~$2,252,396,257~~
Estimated grand total (including all replacement parts and tires)	~~2,534,967,245~~ * $2,804,952,716
Exports of Motor Vehicles	**328,999**
Registration	**15,092,177**
Cars	13,464,608
Trucks	1,627,569
Motor Vehicle Mfg. Business:	
Capital invested	$1,571,722,411
Wages and salaries	579,002,686
Number of car manufacturers	90
Number of truck manufacturers	147
Number of Motor Vehicle Dealers in U.S.	**43,588**

Per Cent of Closed Models in Motor Car Output

(Figures for entire industry)



Monthly Trend of Closed Car Output

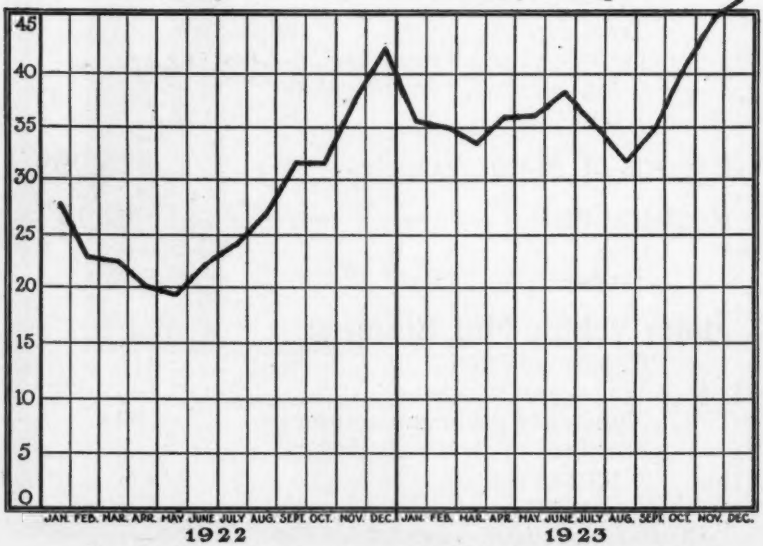
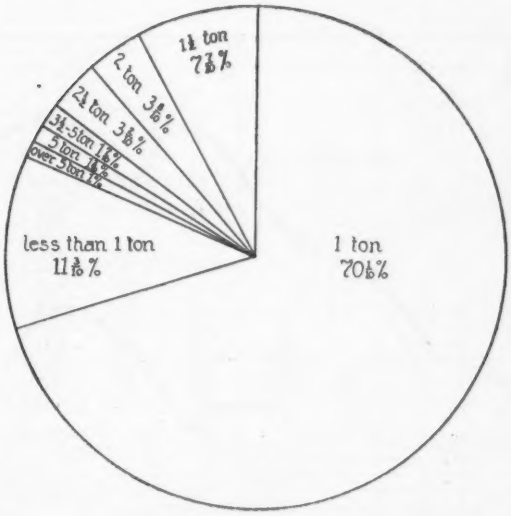


Chart includes all makes of cars of which the touring model retails for over $400

Truck Production by Capacities—Per Cent

1923



SIZE	1919 Percent	1920 Percent	1921 Percent	1922 Percent	1923 Percent
¾ ton or less	21.0	19.0	22.9	24.5	11.3
1 ton	47.0	51.0	54.1	58.5	70.1
1½ ton	8.5	11.0	4.8	2.8	7.7
2 ton	10.0	8.0	7.6	5.5	3.8
2½ ton	5.5	4.0	2.7	4.5	3.2
3½ ton	3.8	4.0	2.3	1.3	1.7
5 ton	2.9	2.0	3.2	2.3	1.2
Over 5 ton and special	1.3	1.0	2.4	.6	1.0
Total	100%	100%	100%	100%	100%

Truck Production by Capacities—Number

SIZE	1919 Number	1920 Number	1921 Number	1922 Number	1923 Number
¾ ton or less	66,436	61,187	33,809	62,194	44,198
1 ton	148,691	164,240	79,844	147,796	275,343
1½ ton	26,891	35,424	7,076	7,134	30,249
2 ton	31,636	25,763	11,206	13,830	14,998
2½ ton	17,400	12,871	3,958	11,247	12,519
3½ ton	12,022	12,893	3,343	3,319	6,761
5 ton	9,175	6,441	4,714	5,718	4,611
Over 5 ton and special	4,113	3,220	3,600	1,430	4,081
Total	316,364	322,039	147,550	252,668	392,760

Growth of Motor Vehicle Production

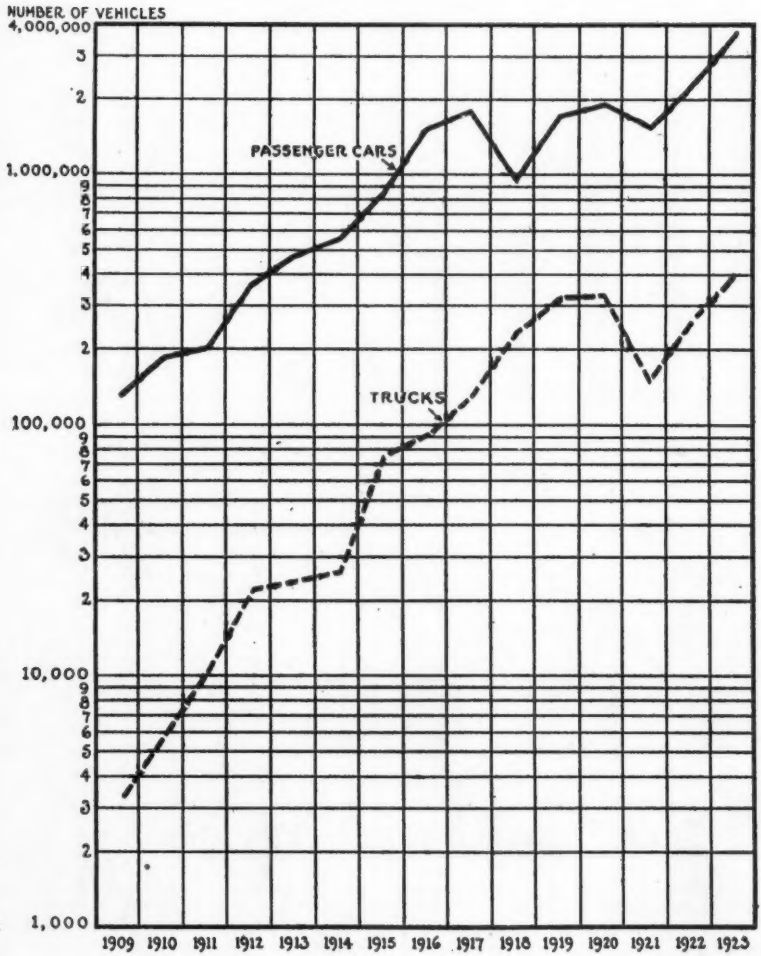


Chart indicates a steady upward trend in motor vehicle output. It will be noted that after periods of curtailment of business there follows a compensating rapidity of growth.

Annual Production of Motor Vehicles

PASSENGER CARS

Year	Number	Wholesale Value
*1899.....	3,700	$4,750,000
*1904.....	21,281	23,634,367
*1909.....	127,731	159,918,506
1910.....	181,000	213,000,000
1911.....	199,319	240,770,000
1912.....	356,000	335,000,000
1913.....	461,500	399,902,000
*1914.....	543,679	413,859,379
1915.....	818,618	565,978,950
1916.....	1,493,617	797,469,353
†1917.....	1,740,792	1,053,505,781
†1918.....	926,388	801,937,925
1919.....	1,657,652	1,461,785,925
1920.....	1,883,158	1,809,170,963
1921.....	1,514,000	1,093,918,000
1922.....	2,406,396	1,567,003,041
1923.....	**3,694,237**	

MOTOR TRUCKS

Year	Number	Wholesale Value
*1904.....	411	$ 946,947
*1909.....	3,255	5,230,023
1903–1910	10,374	20,485,500
1911.....	10,655	22,292,321
1912.....	22,000	43,000,000
1913.....	23,500	44,000,000
*1914.....	25,375	45,098,464
1915.....	74,000	125,800,000
1916.....	90,000	157,500,000
†1917.....	128,157	220,982,668
†1918.....	227,250	434,168,992
1919.....	316,364	423,326,621
1920.....	322,039	423,756,715
1921.....	147,550	166,082,000
1922.....	252,668	222,635,324
1923.....	**392,760**	**311,144,434**

TOTAL CARS AND TRUCKS

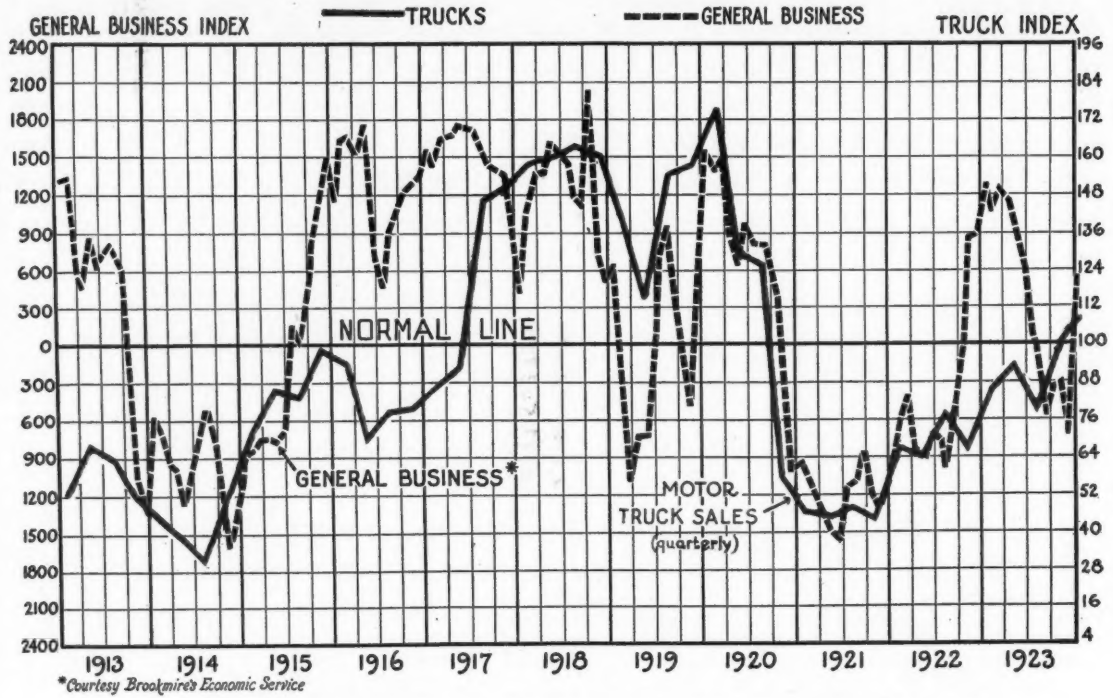
Year	Number	Wholesale Value
*1899.....	3,700	$ 4,750,000
1903.....	11,000	12,650,000
*1904.....	21,975	30,864,616
1905.....	25,000	40,000,000
1906.....	34,000	62,900,000
1907.....	44,000	93,400,000
1908.....	65,000	137,800,000
*1909.....	130,986	165,148,529
1910.....	187,000	225,000,000
1911.....	210,000	262,500,000
1912.....	378,000	378,000,000
1913.....	485,000	$425,000,000
*1914.....	569,054	458,957,843
1915.....	892,618	691,778,950
1916.....	1,583,617	954,969,353
†1917.....	1,868,949	1,274,488,449
†1918.....	1,153,638	1,236,106,917
1919.....	1,974,016	1,885,112,546
1920.....	2,205,197	2,232,927,628
1921.....	1,661,550	1,260,000,000
1922.....	2,659,064	1,789,638,365
§1923.....	4,086,997	

*From U. S. Census reports.

†Production figures compiled by Automotive Products Section, War Industries Board, from sworn statements by manufacturers.

§Figures as in previous years include production of plants located in Canada, making motor vehicles of U. S. design. Output figures for these plants are: 1920, 94,144; 1921, 66,246; 1922, 101,007; 1923, 148,791.

Truck Sales Follow Trend in General Business Curve



*Courtesy Brookmire's Economic Service

Note the steady upward movement of truck sales since 1921. Seasonal variation and growth factors are eliminated.

Production and Registration of Motor Vehicles 1895-1923

Year	Production	Per Cent Gain Over Preceding Year	Registration	Per Cent Gain Over Preceding Year
1895...	300	.....	300	.....
1896...	600	100 %	900	200 %
1897...	1,200	100 %	2,100	133 %
1898...	2,400	100 %	4,600	119 %
1899...	3,874	61 %	8,624	87.5%
1900...	5,000	29 %	13,824	60 %
1901...	7,000	40 %	20,590	49 %
1902...	9,000	23.5%	28,755	39.6%
1903...	11,000	22 %	38,083	32.5%
*1904...	21,975	100 %	57,864	52 %
1905...	25,000	13.8%	77,988	34.5%
1906...	34,000	36 %	106,928	37 %
1907...	44,000	29.5%	142,061	33 %
1908...	65,000	47.6%	197,479	39 %
*1909...	130,986	100 %	311,197	57.5%
1910...	187,000	43 %	468,497	50 %
1911...	210,000	12.3%	639,514	36.4%
1912...	378,000	82 %	944,000	47.8%
1913...	485,000	28.1%	1,258,062	33 %
*1914...	569,054	17.5%	1,711,339	36 %
1915...	892,618	56.7%	2,445,666	43 %
1916...	1,583,617	77 %	3,512,996	43.6%
§1917...	1,868,949	18 %	4,983,340	42 %
§1918...	1,153,638	−38 %	6,146,617	23 %
1919...	1,974,016	+71 %	7,565,446	23 %
1920...	2,205,197	+11.5%	9,231,941	22 %
1921...	1,661,550	−24.6%	10,463,295	13 %
1922...	2,659,064	+60 %	12,238,375	17 %
†1923...	4,086,997	+53 %	15,092,177	23 %

*From U. S. Census Reports.

§Production figures compiled by Automotive Products Section, War Industries Board, from sworn statements by manufacturers.

†Includes, as in preceding years, motor vehicles of U. S. design made in Canada.

NOTE:—Registrations by States are given on pages 34-41, by Cities on pages 42-43.

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Number of Prospective Automobile Owners Exceeds 1923 Motor Car Registration

There are more prospective automobile owners in the United States, on the basis of present population, than there are motor cars registered today.

The number of motor car owners at the end of 1923 was 13,464,000 (not including motor truck operators). The number of persons gainfully employed in the U. S., according to the 1920 Census is 41,614,248.

The number of income receivers in the different classifications as shown in the Chart below is estimated on the basis of studies by the National Bureau of Economic Research. Assuming that the motor car owners are mainly in the higher brackets, the entire field of those receiving under $1500 yearly is still unsupplied with motor transportation.

While it cannot be assumed that all of the 28,150,000 gainfully employed non-owners of automobiles are prospects, yet it must be remembered that the rate of incomes of these persons is not fixed. Millions of them are young people who will move up into the higher brackets.

The form of this Chart is suggested by a similar study in the Cleveland Trust Company Business Bulletin.

It is important to bear in mind that the growth in the motor vehicle market depend on the ability of the lower income brackets to purchase *used cars*, not necessarily new cars.

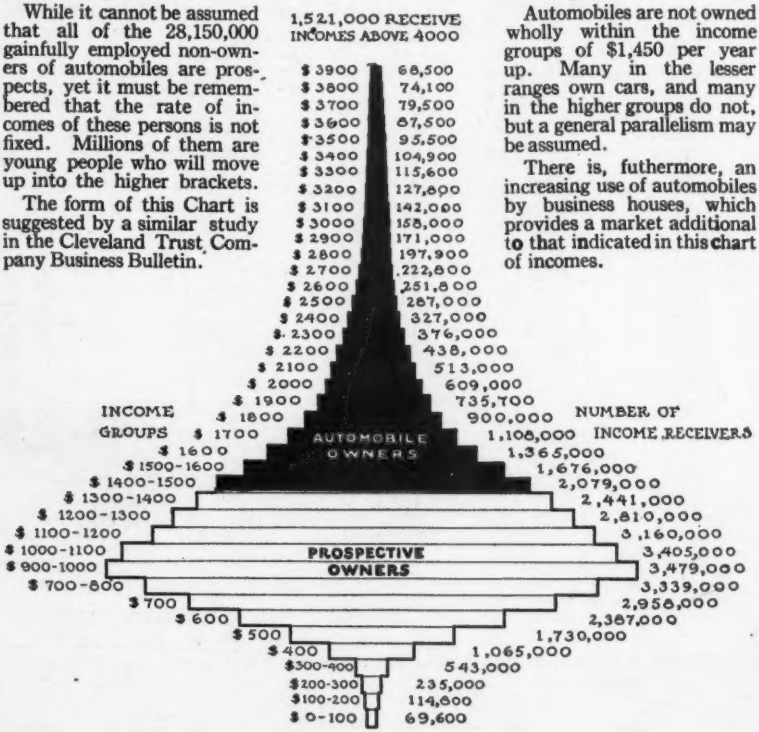
The ability of these groups, for instance, to purchase millions of used cars at $200 each, would have a similar effect to that if they purchased new vehicles, for the purchase of the used product enables the owner of it to buy a new automobile.

In general, the process is not selling brand new cars to first time owners, but of pouring in at the top with the used cars being traded in and going to a secondary market.

High class used cars are, of course, in competition with new vehicles of similar price.

Automobiles are not owned wholly within the income groups of $1,450 per year up. Many in the lesser ranges own cars, and many in the higher groups do not, but a general parallelism may be assumed.

There is, futhermore, an increasing use of automobiles by business houses, which provides a market additional to that indicated in this chart of incomes.



Increasing Annual Total of Motor Vehicles Scrapped

Year	Exports (U. S. and Canada)	Imports (U. S.)	Vehicles Going into Domestic Market Annually	Cumulative Number of Vehicles Put Into Domestic Use	[Total] Vehicles Scrapped to Date	[Motor Vehicles Scrapped Annually
1913.....	30,655	492	454,837	1,534,265	276,203	140,775
1914.....	32,071	296	537,279	2,071,544	360,205	84,002
1915.....	69,196	221	823,643	2,895,187	449,521	89,316
1916.....	98,126	1,429	1,486,920	4,382,107	869,111	419,590
1917.....	90,001	78	1,779,026	6,161,133	1,177,793	308,682
1918.....	55,691	73	1,098,020	7,259,153	1,112,536	65,257*
1919.....	96,910	117	1,877,223	9,136,376	1,570,930	458,394
1920.....	196,150	926	1,940,333	11,076,709	1,844,768	273,838
1921.....	58,004	522	1,557,732	12,634,441	2,171,146	326,378
1922.....	92,962	483	2,483,309	15,117,750	2,879,375	708,229
1923.....	**221,816**	**853**	**3,864,328**	**18,982,078**	**3,889,901**	**1,010,526**

*Number of motor vehicles put into use again after having been scrapped in the preceding year.

NOTE—The total of motor vehicles scrapped during a given year is only part of the replacement market. Replacements depend on a.) supplying the gap caused by scrapping of motor vehicles, and b.) supplying new vehicles to owners who can sell their used cars. See Chart and comment on opposite page.

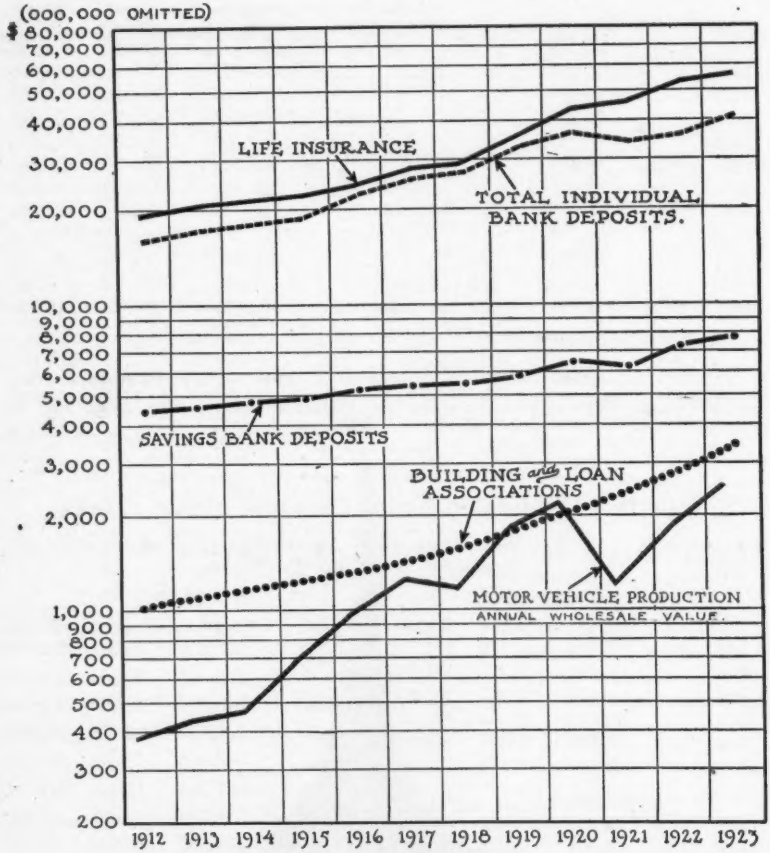
Monthly Production Motor Cars and Motor Trucks

(Figures from U. S. Department of Commerce. Monthly figures were not compiled by any organization prior to July, 1921)

	1921			1923			
	Cars	Trucks	Total		Cars	Trucks	Total
July.....	165,616	11,136	176,752	Jan.....	223,819	19,720	243,539
Aug.....	167,756	13,400	181,156	Feb.....	254,773	22,161	276,934
Sept.....	144,670	13,978	158,648	March....	319,770	35,260	355,030
Oct.....	134,774	13,149	147,923	April.....	344,639	38,056	382,695
Nov.....	106,081	10,487	116,568	May.....	350,410	43,678	394,088
Dec.....	70,727	8,656	79,383	June.....	337,362	41,145	378,507
	1922			July.....	297,330	30,663	327,993
Jan.....	81,696	9,576	91,272	Aug.....	314,373	30,829	345,202
Feb.....	109,171	13,350	122,521	Sept.....	298,911	28,638	327,549
March....	152,962	20,022	172,984	Oct.....	335,023	30,166	365,189
April.....	197,224	22,640	219,864	Nov.....	284,923	28,070	312,993
May.....	232,462	24,097	256,559	Dec.....	275,439	27,744	303,183
June.....	263,053	26,298	289,351				
July.....	225,086	22,046	247,132				
Aug.....	249,492	24,692	274,184				
Sept.....	187,694	19,462	207,156				
Oct.....	217,566	21,795	239,361				
Nov.....	215,352	21,949	237,301				
Dec.....	208,010	20,354	228,364				

NOTE—Totals for the 12 months are not identical with yearly figures given elsewhere in this book, due to some discrepancy in including in the latter vehicles of U. S. design made in Canada. The monthly differences are, however, slight.

Upward Trend of Savings and Motor Transportation



Investment by the public in motor vehicles has been accompanied during the past ten years by a continual upward trend in various forms of savings. Assets of Building and Loan Associations have tripled, Life Insurance in force is more than two and a half times as great, Savings Bank deposits are nearly double, and Total Individual Bank Deposits are more than twice what they were in 1913. Note that, due to the low price of motor vehicles today, the 1923 wholesale value curve is but little higher than 1920, though production in terms of units is 50% higher.

Rapid Growth in Home Building and Motor Car Production

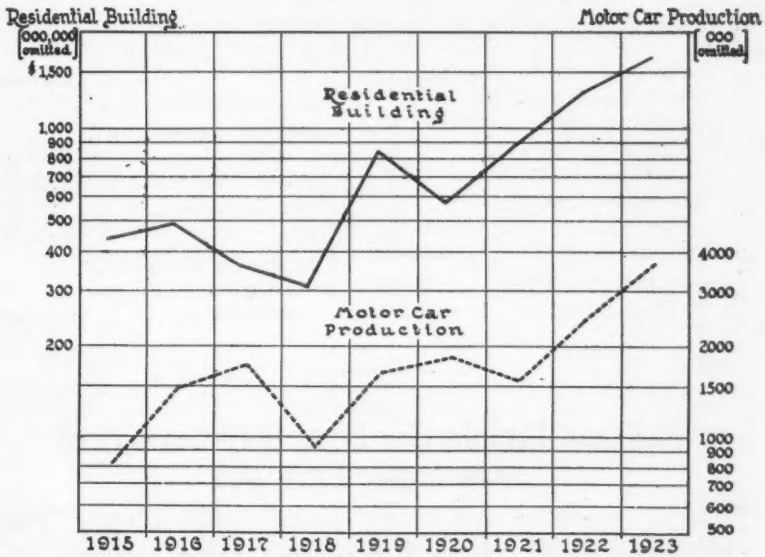


Chart indicates comparative gains in money expended for residential building since 1915, and the increase in motor car production during the same period. Building figures are for 27 northeast states on which figures are collected by the F. W. Dodge Co.

Investment in Motor Vehicles, Banks, Life Insurance, Building and Loan Associations 1913-1923

(See Chart on Opposite Page)

Year	Total Deposits in all Banks	Savings Banks Deposits	Building & Loan Association Assets	Life Insurance in Force, Ordinary & Industrial	Wholesale Value of Motor Vehicle Production
1913..	$17,475,764,134	$4,726,472,768	$1,137,600,648	$20,520,598,372	$425,000,000
1914..	18,517,732,879	4,936,591,849	1,248,479,139	21,565,652,328	458,957,843
1915..	19,225,766,874	4,997,706,013	1,357,707,900	22,743,336,831	691,778,950
1916..	22,877,607,339	5,088,587,295	1,484,205,875	24,636,030,335	954,969,353
1917..	26,289,708,159	5,418,022,275	1,598,628,136	27,116,690,770	1,274,488,449
1918..	27,931,843,777	5,471,579,949	1,769,142,175	29,797,068,355	1,236,106,917
1919..	32,703,114,000	5,902,577,000	1,898,344,346	35,514,553,927	1,885,112,546
1920..	37,683,563,000	6,536,596,000	2,126,620,390	42,330,968,000	2,232,927,628
1921..	35,459,155,000	6,018,166,000	2,519,914,971	45,983,400,333	1,260,000,000
1922..	37,194,318,000	7,181,248,000	2,890,764,621	50,290,700,176	1,789,638,365
1923..	40,034,195,000	7,897,909,000	3,342,530,953	56,000,000,000	~~2,004,952,716~~ 2,557,543,704 *

* N.A.C.C. Letter of 2-2-25

Motor Industry Third Largest Railroad Shipper of Manufactured Articles

(Figures from Interstate Commerce Commission)

	Carloads		Carloads
1. Refined Petroleum and its products	1,306,390	7. Iron, pig and bloom	309,145
2. Bar and sheet iron, structural iron, and iron pipe	915,392	8. Castings, machinery and boilers	290,800
3. Automobiles, trucks and parts	797,307	9. Chemicals and explosives	289,815
4. Cement	552,987	10. Lime and plaster	231,415
5. Brick and artificial stone	532,613	11. Ice	198,052
6. Fertilizers (all kinds)	328,051	12. Agricultural Implements and vehicles other than automobiles	177,438

Railroad Freight Car Load Shipments from Automobile Factories

Year	1917	1918	1919	1920	1921	1922	1923
January	23,292	11,528	17,039	25,057	6,485	15,357	35,423
February	22,385	12,030	19,152	25,505	9,986	19,636	36,137
March	29,443	16,728	23,744	29,326	16,287	27,753	44,995
April	27,700	17,797	25,267	17,147	20,187	31,334	46,102
May	26,451	17,833	24,497	21,977	18,608	33,416	45,402
June	21,524	15,869	22,196	22,516	20,269	34,230	40,291
July	19,993	13,741	24,897	23,082	19,514	29,116	32,837
August	22,044	13,868	22,677	23,386	20,758	32,817	38,371
September	20,538	10,879	24,711	20,804	19,002	26,335	36,030
October	21,403	10,667	29,843	17,209	17,808	27,100	42,309
November	18,942	9,254	26,690	13,253	14,264	27,232	37,537
December	15,827	11,258	24,004	11,802	12,310	27,244	36,113
Total	**269,542**	**161,470**	**284,717**	**251,064**	**195,478**	**331,570**	**471,547**

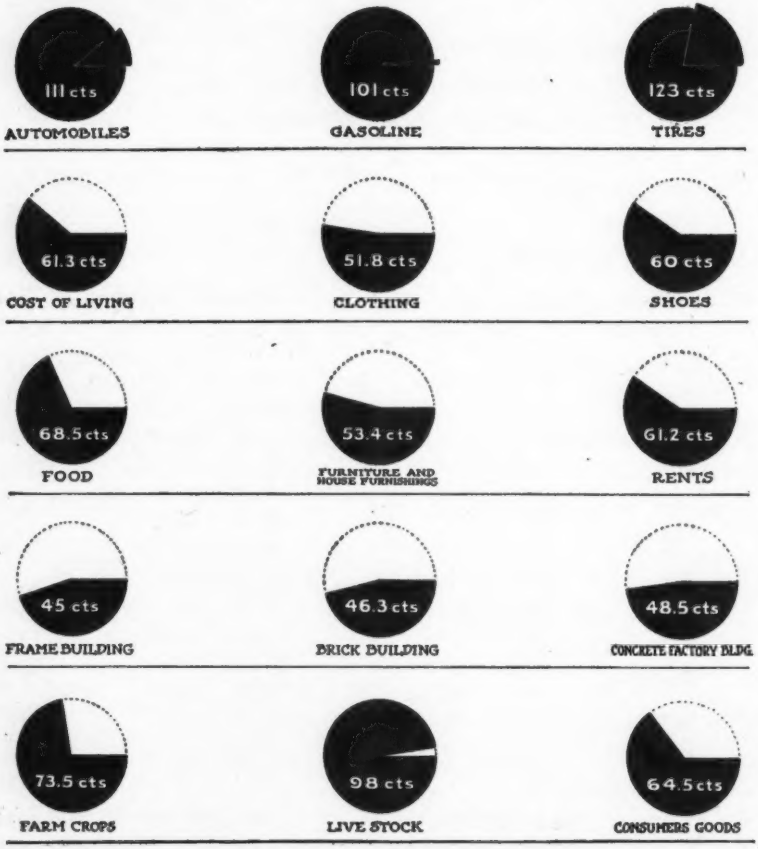
	1922	1923
Total CARLOADS of completely assembled motor cars and trucks *from assembling as well as main plants*	404,195	604,080
Total CARLOADS of Automobiles, Motor Trucks and Parts, except Tires and Chains (I. C. C. Commodity Statistics)	522,290	797,307
Number of MACHINES DRIVEN from main plants and assembling plants	751,347	1,142,315
Number of MACHINES SHIPPED BY BOAT	58,220	81,587

Raw Materials Used in Manufacturing Motor Vehicles During 1923

	Amount Used in Motor Vehicle Manufacturing and % of Total Production of Material.
Iron and steel (tons)	3,434,800
Percent of finished rolled steel and iron output used in manufacturing cars and trucks	10.2%
Copper (pounds)	121,949,150
Percent	9.3%
Aluminum (pounds)	91,514,000
Plate glass (square feet)	47,229,500
Percent	53%
Leather (square feet)	60,000,000
Percent	69%
Rubber (pounds)	547,468,544
Percent	80%
Lumber, hardwoods (board feet)	1,163,232,000
Percent	14%
Lumber, soft wood, crating for railroad shipments and exports	300,121,000
Lead (pounds)	135,349,000
Percent	12%
Tin (tons)	7,300
Percent	10%
Nickel (pounds)	6,275,000
Paint and varnish (gallons)	14,304,500
Imitation leather (square feet)	166,319,000
Upholstery cloth (yards)	19,036,000
Top and side curtain material	30,389,000
Hair and padding (pounds)	40,870,000
Asbestos (feet)	60,000,000

Purchasing Power of 1913 Dollar (100 cts) in Various Commodities

Shows Value or Amount of Goods Received for One Dollar in 1923.



Automobile Dollar Buys More Today Than in 1913

This chart shows that more value is received for the money today in buying automobiles, gasoline and tires than in 1913. Using the 1913 dollar as a standard, it now buys 111 cents worth of automobile, 101 cents in gasoline and 123 cents in tires. In most other commodities the 1913 dollar buys only 60 cents worth of goods.

1923 prices are as of August or September.

Gasoline Figures for United States

(Figures from U. S. Bureau of Mines)

Year	Domestic Production Gallons	Domestic Consumption	Excess of Supply Over Demand
1918	3,570,312,963 gal.	3,129,266,347 gal.	441,046,616 gal.
1919	3,957,857,097 "	3,434,812,486 "	523,044,611 "
1920	4,882,546,699 "	4,250,696,163 "	631,850,536 "
1921	5,153,549,318 "	4,516,027,256 "	637,522,062 "
1922	6,202,234,613 "	5,372,085,042 "	830,149,571 "
1923	7,555,945,143 "	6,685,035,280 "	870,909,863 "

Crude Oil Figures for United States

(Figures from U. S. Geological Survey)

Year	Domestic Production Barrels	Imports Barrels	Consumption Barrels
1916	300,767,158 bbl.	20,568,000 bbl.	318,588,000 bbl
1917	335,315,601 "	30,168,000 "	377,736,000 "
1918	355,927,716 "	37,728,000 "	413,076,000 "
1919	377,719,000 "	52,812,000 "	418,476,000 "
1920	443,402,000 "	108,792,000 "	524,016,000 "
1921	469,639,000 "	125,136,000 "	525,470,000 "
1922	557,537,000 "	127,308,000 "	592,432,000 "
1923	725,702,000 "	82,015,000 "	710,739,000 "

Rubber Tire Production

(Figures from Rubber Association of America)

	1921	1922	1923
Tire Casings (number)	27,297,919'	40,930,852	45,245,000
Inner Tubes (number)	32,082,000	50,847,912	60,171,000
Solid Tires (number)	586,115	874,000	769,000
Crude Rubber Consumed (pounds)	308,125,440	523,526,220	545,135,360

Parts, Tire and Accessory Business

(Figures from Motor and Accessory Manufacturers Association)

	1922	1923
1. Total value of business. (Value of parts, units, and accessories sold to car and truck manufacturers, based on estimates of M. & A. M. A., including reports from 305 representative manufacturers selling to car and truck builders)	$982,952,384†	$1,270,000,000†
2. Total value of parts, tires and accessories manufactured for replacement	768,569,024*	800,000,000*
3. Grand total value of parts, unit, tire and accessory production	1,751,521,408	2,070,000,000
4. Grand total wholesale value of cars and trucks	1,789,638,365	2,510,885,000
5. 80% of Item No. 4 (allowing 20% for car and truck manufacturers' profit, over-head, etc.)	1,428,861,790	2,008,708,000
6. Ratio of Item No. 1 to Item No. 5. (Showing proportion of total vehicle wholesale value manufactured by parts and accessory makers)	69%	63%

†Based on M & A. M. A. Credit Dept. records. *Estimate of "Automotive Industries."

DETROIT PUBLIC LIBRARY

Outstanding Facts on

More than 15,000,000 motor vehicles are now registered in the United States.

Motor vehicles and automotive products paid $157,000,000 in special Federal excise taxes in the calendar year 1923.

The motorists, Federal, State and local tax bill in 1923 exceeded $471,500,000.

Automotive products paid 77% of the total special excise taxes in 1923.

More than 4,500,000 cars and trucks are owned on farms.

The automobile industry gives employment to 2,750,000 workers.

The states which have the highest percentage of homes owned also lead in the number of motor cars per 1,000 population.

60% of passenger car mileage is for business purposes.

134 street railways are using motor buses.

157 railroads are using motor vehicles on short line hauls.

Motor Transportation

75% of all cars sold retail for under $1,000.00.

The average price of new cars sold is $811.00.

The automobile dollar of 1923 is worth 111 pre-war cents.

Only 5.6% of general taxes is spent for highway purposes.

The Federal Government has collected $589,000,000 since 1917 in taxes for motor vehicles and has paid out $264,000,000 or 45% of this for federal aid highway funds.

Transportation (motor, steam, electric railways and waterways) pays 8.1% of the nation's tax bill.

144,000 cars are owned by doctors.

289,000 children are transported to school daily in motor buses.

97% of Cincinnati's milk supply is brought to the city in motor trucks.

1923 was a record year for iron and steel production, saving bank deposits, and automobile sales.

144,000 Doctors Own Motor Cars

(Responses to thousands of queries mailed to doctors throughout the country indicate that not only are there 144,000 doctors owning motor vehicles or 90% of the total, but also that the automobile has been a marked contribution to the physician, enabling him to respond promptly to urgent calls, and saving him hours of time in his routine duties.)

DATA ON DOCTOR-OWNED CARS

No. doctors owning cars	144,000
Per cent owning more than one car	9½%
Average annual mileage	11,665 mi.
Average annual gasoline consumption	720 gals.
Average number tires purchased yearly	5
Per cent reporting 50% efficiency gain from car	22½%
Per cent reporting 100% efficiency gain from car	22%
Per cent reporting 200% efficiency gain from car	5%

TYPICAL COMMENTS BY PHYSICIANS

Efficiency of cars increases in direct proportion to road improvement.—Klamath Falls, Ore.

The motor car is indispensable to the physician.—New Braunfels, Texas.

Auto as necessary for M.D. transportation as telephone for speedy communication.—Hartford, Conn.

Cuts down night calls; more time for office work and pleasure.—Delphi, Ind.

A physician in rural districts can handle three or four times as large a territory with a car as with horses.—Olean, Mo.

Rail Lines and Motor Develop Suburbs

(The following table shows the steady increase in both motor and rail travel in Long Island, a suburban district of New York City. The motor vehicle registrations and new dwellings figures are for those counties on the island not within the city limits.)

	Passengers carried by Long Island R. R. System	Motor cars registered	Freight Tonnage carried by L. I. R. R.	Motor Trucks registered	New Dwellings Constructed
1917	50,796,028	11,829	5,271,509	2,482	3,863
1918	55,486,000	19,710	5,798,876	3,834	1,153
1919	64,067,541	24,309	6,916,886	4,574	7,911
1920	72,743,820	24,709	5,886,969	5,430	7,531
1921	75,506,045	32,360	5,572,679	7,566	16,197
1922	79,656,891	41,111	6,028,003	10,245	23,336
1923	86,194,439	51,673	7,917,977	11,176	31,699

For area not in Greater New York.

Average Week Day Vehicular Traffic on Metropolitan Ferries Shows Gain in Motor Travel

(Another example of suburban growth of motor vehicle traffic is the following table compiled by the New Jersey Interstate Bridge and Tunnel Commission. These ferries operate between Manhattan Island and New Jersey.)

Year	Total Yearly Traffic	Horse Drawn		Motor Driven		Total Traffic	Per Cent Increase
		Number	Per Cent	Number	Per Cent		
FIVE FERRY GROUP							
1914	2,839,055	7655	86.9	1159	13.1	8814	....
1918	3,496,620	6270	59.9	4193	40.1	10463	5.9
1921	3,889,994	4532	39.3	7008	60.7	11540	0.3
1922	4,220,717	4575	37.2	7727	62.8	12302	6.6
1923	4,477,802	4057	31.1	8973	68.9	13030	5.9
SIX FERRY GROUP							
1914	2,089,311	5346	81.2	1233	18.8	6579	....
1918	2,669,003	4594	55.1	3739	44.9	8333	9.5
1921	2,498,457	2629	36.9	4498	63.1	7127	.8
1922	2,903,881	2842	32.5	5903	67.5	8745	22.7
1923	3,164,008	2630	27.2	6989	72.8	9619	10.0
FOUR FERRY GROUP							
1919	2,036,421	444	8.5	4780	91.5	5224	....
1920	2,089,035	....	....	....	....	5400	3.4
1921	2,584,691	455	6.7	6329	93.3	6784	25.6
1922	3,007,538	313	4.0	7474	96.0	7787	14.8
1923	3,302,524	269	3.0	8694	97.0	8963	15.1

Fifteen Largest Motor Truck Fleets in United States

(Figures from Class Journal Company)

Company	No. Vehicles
Western Electric Company, 195 Broadway, New York City, N. Y.	12,032
The Post Office Department, Washington, D. C.	4,434
American Railway Express Company, New York City, N. Y.	3,831
Armour & Company, Chicago, Illinois. (Meat Packers)	3,374
Fleischman & Company, New York City, N. Y. (Bakers)	2,419
Standard Oil Company of Indiana, Chicago, Illinois	1,800
Ward Baking Company, Cambridge, Mass.	1,500
Standard Oil Company of California, New York City, N. Y.	1,443
Liggett & Myers, 212 Fifth Avenue, New York City, N. Y. (Tobacco)	1,262
Department of Street Cleaning, New York City, N. Y.	1,100
New York Telephone Company, New York City, N. Y.	1,000
Southern California Edison Company, Big Creek, California, (Electricity)	800
California Highway Commission, Sacramento, California	800
Pure Oil Company, Brooklyn, N. Y.	800
Milwaukee Electric Light & Power Co., Milwaukee, Wisconsin	790

City Milk Supply Hauled by Motor Truck

(*Figures from* 1922 *Year Book, U. S. Department of Agriculture*)

Cincinnati

Atlanta

Kansas City, Mo.

Indianapolis

Milwaukee

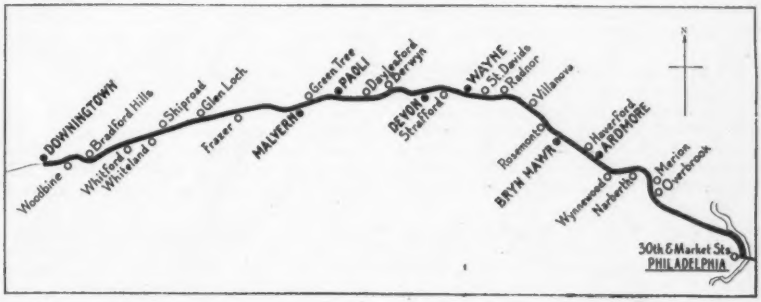
Baltimore

Pennsylvania's Railroad's Motor Truck Units

	Mileage
Truck Unit No. 1—Cambridge to Salisbury, in connection with the B. C. & A. and the P. R. R. also Easton, Goldsboro, Denton and Federalsburg	34
Truck Unit No. 2—Pittsburgh to Enon, Eastern Division over Fort Wayne	46
Truck Unit No. 3—Overbrook to Downington—Philadelphia Division	32
Truck Unit No. 4—Paschall to Wilmington—Maryland Division	23
*Truck Unit No. 5—New Alexandria Branch—Pittsburgh Division	15
Truck Unit No. 6—Monongahela Division, between Pittsburgh and Monongahela City	31
Truck Unit No. 7—Gloucester to Newfield, Atlantic Division	26
Truck Unit No. 8—Arch St. Palmyra to Bordentown, Trenton Division	20
Truck Unit No. 9—Bordentown to South Amboy, Trenton Division	35
*Truck Unit No. 10—From Holmesburg Junction to Morrisville	13
Truck Unit No. 11—Wilmington to Perryville, Maryland Division	26
	†301

Note—
*Indicates Units where only one motor truck is used. In all others two motor trucks are used.

†This is one way mileage—actual mileage is twice this, or 602.



(*From Railway Age—Feb. 2, 1924*)

Station arrangement for motor truck service on Pennsylvania System west of Philadelphia.

A typical installation of trucks to replace local l. c. l. freight trains. Zone stations shown in heavy letters are served by destination cars dropped by local freight train daily. Trucks pick up freight at each Zone Station and carry it to intervening stations, at same time picking up freight to be dropped at next Zone Station. Each truck replaces one local l. c. l. freight train.

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157 Railroads Use Motor Coaches

While only 40 railroads were listed last year as operating motor rail coaches, a compilation made on January 1st, 1924, shows a total of 157, or an apparent increase of about 300%. These figures indicate that the the railroads of the country are not only using the motor coach in an experimental way, but many of them have already found that it is practical and economical.

RESOLUTIONS on the Relation of Highways and Motor Transport to Other Transportation Agencies

(Adopted by the Transportation Conference called by the Chamber of Commerce of the U. S., January 10, 1924.)

1. The motor vehicle has proved its unquestionable value in our economic system, having greatly extended the farmer's field of operation, brought much additional land under cultivation and new sources of raw materials within economic reach of markets, quickened the industrial life and facilitated the processes of distribution.

2. The congestion of transportation today centers around the terminal areas of our great cities, where the railroads find the greatest difficulty in keeping pace with the public need, although their main tracks have sufficient capacity for the movement of more freight than is offered to them.

3. In spite of the foregoing fact, the railroads are constantly faced with a demand for more and better terminal facilities in the face of prohibitive real estate values and other stupendous obstacles to expansion.

4. The best interests of the public and of all transportation agencies lie in cooperation, and the greatest opportunity for this cooperation is in the terminal areas.

5. Store-door delivery by motor truck is the greatest contribution which can be made to the solution of the terminal problem.

6. Organized motor transport can also relieve the railroads of various forms of uneconomical service, such as trap-car service, switching between local stations, and short-haul shipments. This will reduce yard congestion and release many cars for more profitable line haul.

7. To secure the fullest benefits from this organized motor transport will require the utilization and further development of modern mechanical equipment.

8. Outside of the terminal area it is to the public interest, as well as to the interest of the respective carriers, that the economic limitations of each type of carrier be recognized, that the railroads be permitted to discontinue unprofitable service to which the motor is better suited, and that the motor abandon its efforts to handle general traffic over uneconomic distances. Unprofitable steam railroad service can in some cases be successfully replaced by the use of self-propelled railroad motor cars.

9. Rail lines can often advantageously extend or supplement their service by motor bus and motor truck lines, and in states where this is now prohibited such restrictions should in the public interest be abolished.

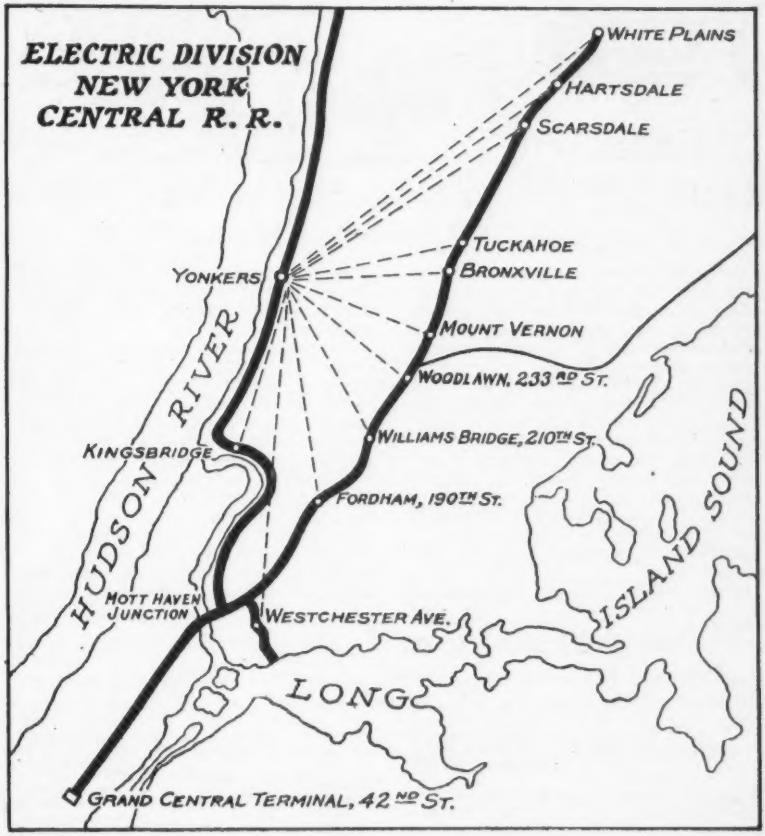
10. To insure to the public reliability of service in all forms of motor transportation, sound financial organization, public regulation and continuous service are necessary.

11. The proper regulation of common-carrier operations of motor vehicles, including the rates, should be handled by the existing authorities which now control the operations of other public carriers. It is believed to be to the best interests of all concerned that proper regulations of traffic and of size, weight and speed of motor vehicles by states and municipalities should be made uniform.

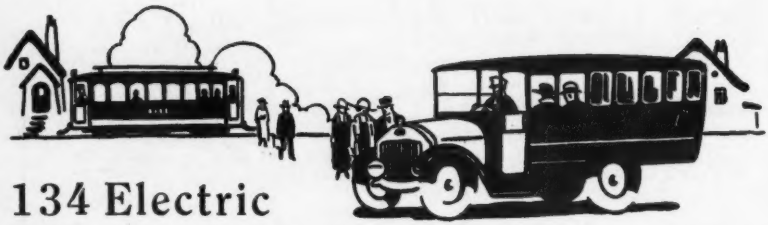
12. Trunk highways should be capable of carrying any vehicular traffic that is economically justified and should be constructed with particular attention to the proper design of well coordinated highway systems.

13. Investigations now under way by the United States Bureau of Public Roads, state highway departments and other agencies to determine more fully the economic role of the motor vehicle should be vigorously prosecuted.

N. Y. Central R. R. Adopts Motor Trucks



The New York Central Lines, on Jan. 28, 1924, greatly expanded their use of motor trucks. Diagram above shows how trucks are used in Metropolitan area of New York, working out from Yonkers to White Plains and other points on the Electric Division. This innovation saves from 24 to 48 hours' time on western shipments of l. c. l. freight, and eliminates some local freight train service. Additional motor truck units have been installed by the New York Central at Buffalo, Rochester and at other points.



134 Electric Railways Operating Motor Bus Lines

Number More Than Double a Year Ago

115 street railway companies are operating buses as feeders, auxiliaries or co-ordinated branches of their transportation systems; 13 bus lines have replaced street railway lines entirely; 5 electric railways operate trackless trolleys as auxiliaries, feeders or co-ordinated branches of their transportation system; one trackless trolley system has superseded electric railway service making a total of 134 separate bus or trackless trolley lines operated in connection with or superseding street railway lines.

The 115 electric railway companies operate 1110 buses over 1280.08 miles of route in feeder, auxiliary or co-ordinated service.

Of the 13 bus lines which have replaced street railway service entirely, 9 are operated by the old street railway company, while 4 are operated by other organizations.

77 companies operate buses in city service, 15 companies operate them in interurban service while 15 companies operate them in both city and interurban service. In addition there are 3 companies operating buses in both city and suburban service and one company in suburban service only. Information is not available as to the type of service on the remaining companies.

Trackless trolley service is operated in city service by 4 companies and in suburban service by 2 companies.—*Statement from American Electric Railway Association.*

ELECTRIC RAILWAYS OPERATING MOTOR BUSES

(Compiled from data collected by the Committee on Bus Transportation of American Electric Railway Association, from "Bus Transportation," and from other sources.)

Operating Company	No. of Buses	Fare Charged (Cents)
ALABAMA		
Birmingham Railway, Light & Power Co.	3	7
ARKANSAS		
Arkansas Central Power Co., Little Rock	1	..
Intercity Terminal Railway Co., North Little Rock	11	6
CALIFORNIA		
Bakersfield & Kern Electric Ry.	5	5
Los Angeles Railway Co.	30	5
Pacific Electric Railway, Los Angeles	112	6
Pacific Gas & Electric Company, Sacramento	4	..
San Diego Electric Railway	12	5
Municipal Railway of San Francisco	8	5
San Francisco-Oakland Terminal Railways, Oakland	6	6
San Jose Railroad	1	..
Stockton Electric R. R. Co.	..	..
Santa Barbara & Suburban Railway Co.	..	8
San Francisco-Sacramento Railroad Co.	1	25
CONNECTICUT		
Connecticut Company, New Haven	44	10
Danbury & Bethel Street Railway, Danbury	5	10
Groton & Stonington Street Railway, Norwich	5	5
Hartford & Springfield Street Railway, Warehouse Point	2	10
DISTRICT OF COLUMBIA		
Capital Traction Co., Washington	8	8
Washington Railway & Electric Co.	18	8
Washington-Virginia Railway	4	5

Note—Fares quoted here do not include reduced rates for tokens, trip tickets, etc.

Electric Railways Operating Buses (Continued)

Operating Company	No. of Buses	Fare Charged (Cents)
ILLINOIS		
Centralia Traction Co.	1	..
Chicago & West Towns Railway, Oak Park	2	10
Chicago & Joliet Electric Railway, Joliet	2	15
East St. Louis Railway Co.	4	8
Rockford City Traction Co.	6	..
Tri-City Railway Company of Illinois	2	..
Chicago, North Shore & Milwaukee R. R., Highwood	27	4c per mi.
INDIANA		
Gary Street Railway Co.	7	10
Gary & Valparaiso Railway Co., Gary	1	..
Chicago, South Bend & Northern Indiana Railway, South Bend	5	8
IOWA		
Des Moines City Railway Co.	3	..
Dubuque Electric Co.	3	10
Waterloo, Cedar Falls & Northern Ry. Co.	6	15
KANSAS		
Kansas Electric Power Co., Lawrence	2	8
Salina Street Railway Co.	1	10
KENTUCKY		
Louisville Railway Co.	12	10
MARYLAND		
United Railways & Electric Co., Baltimore	36	10
*United Railways & Electric Co. of Baltimore	3	7
Potomac Edison Co., Cumberland	2	10
Potomac Public Service Co., Frederick	15	10
MASSACHUSETTS		
Boston Elevated Railway Co.	31	5
Eastern Massachusetts Street Ry., Boston	31	10
Connecticut Valley Street Railway, Greenfield	3	10
Northern Massachusetts Street Railway, Greenfield	15	5
Holyoke Street Railway Co.	3	6
Union Street Railway, New Bedford	3	5
Plymouth & Brockton Street Ry., Plymouth	2	7
Springfield Street Railway Co.	4	7
MICHIGAN		
City of Detroit—Dept. of Street Rys.	5	6
Grand Rapids Railway	6	10
Houghton County Traction Co.	3	..
Michigan United Rys., Jackson	11	8
Muskegon Traction & Lighting Co.	1	10
Saginaw Transit Co.	25	10
MINNESOTA		
Mankato Electric Traction Co.	2	7
Twin City Rapid Transit Co., St. Paul	1	6
MISSISSIPPI		
Vicksburg Light & Traction Co.	2	7
MISSOURI		
Springfield Traction Co.	13	5
NEW JERSEY		
Millville Traction Co.	1	..
Public Service Railway, Newark	27	5
Trenton & Mercer County Traction Corp.	5	8
NEW MEXICO		
City Electric Co., Albuquerque	1	7
NEW YORK		
International Ry. Co., Buffalo	6	7
New York State Rys., (Rochester Lines)	3	7
*New York State Railways, Rochester	5	7
New York State Rys., (Utica Lines)	4	7
Niagara Gorge Bus Lines	10	..
*Staten Island Trackless Trolley (Operated by the City of New York)	14	5
OHIO		
Hocking-Sunday Creek Traction Co., Nelsonville	1	5
Columbus, Newark & Zanesville Electric Ry.	13	6
Springfield Street Railway	1	..
Indiana, Columbus & Eastern Traction Co., Cincinnati	14	3c per mi.
Community Tract. Co., Toledo	4	..
Pennsylvania-Ohio Electric Co., Youngstown	26	10
Youngstown & Suburban Ry.	4	2.4c per mi.
Youngstown Municipal Railway	31	8
Cleveland & Eastern Traction Co., Cleveland	..	..
Northern Ohio Traction & Light Co., Akron	17	5
City of Ashtabula (Division of Street Railways)	1	..
Steubenville, East Liverpool and Beaver Valley Traction Co., East Liverpool	2	10
OKLAHOMA		
Okmulgee Traction Co.	3	10
Tulsa Street Railway	23	7
OREGON		
Portland Railway, Light & Power Co., Oregon City	2	5
PENNSYLVANIA		
Altoona & Logan Valley Elec. Ry., Altoona	7	10
Schuylkill Railway, Girardville	6	10
Johnstown Traction Co.	3	..
*Philadelphia Rapid Transit Co.	..	7
West Penn Railways Co., Pittsburgh	5	7
Conestoga Traction Co., Lancaster	2	6
Lewistown & Reedsville Electric Rwy.	2	6

*Trolley buses (trackless trolleys)

Note—Fares quoted here do not include reduced rates for tokens, trip tickets, etc.

(Continued on following page.)

Electric Railways Operating Buses (Continued)

Operating Company	No. of Buses	Fare Charged (Cents)
PENNSYLVANIA (Continued)		
Beaver Valley Traction Co., New Brighton	2	10
Citizens Traction Co., Oil City	7	10
Pittsburgh, Mars & Butler Ry. Co.	10	5
Philadelphia Rapid Transit Co.	20	10
Pittsburgh, Harmony, Butler & New Castle Ry., Harmony	3	..
Jefferson Traction Co., Punxsutawney	3	..
Westchester Street Railway	14	..
York Railway	4	4-5 per mi.
Westmoreland County Ry. Co., Pittsburgh	2	..
RHODE ISLAND		
United Electric Rys., Providence	28	6
SOUTH DAKOTA		
Sioux Falls Traction System	5	10
TEXAS		
Eastern Texas Electric Co., Beaumont	1	10
Northern Texas Traction Co., Ft. Worth	8	7
San Antonio Public Service Co.	10	6
UTAH		
Utah Light & Traction Co., Salt Lake City	2	10
VIRGINIA		
*Virginia Railway & Power Co., Petersburg	2	..
WASHINGTON		
Puget Sound International Ry. & Power Co., Everett	17	5
Pacific Northwest Traction Co., Seattle	15	3c per mi.
Seattle Municipal Street Railway	9	10
Seattle & Rainier Valley Ry.	2	5
Pacific Traction Co., Tacoma	11	3.1 per mi.
Tacoma Railway & Power Co.	2	10
WEST VIRGINIA		
Wheeling Public Service Co.	4	5
Monongahela Power & Ry., Fairmont	8	7
Princeton Power Co.	1	..
WISCONSIN		
Wisconsin Public Service Corp., Green Bay	..	10
Wisconsin Gas & Electric Co., Kenosha	6	7
Milwaukee Electric Ry. & Light Co.	100	7
Eastern Wisconsin Electric Co., Oshkosh	8	3.65 per mi.
CANADA		
British Columbia Electric Railway, Vancouver	2	6
Toronto Transportation Commission	15	7
*Toronto Transportation Commission	3	7
Winnipeg Electric Railway	11	7
Montreal Tramways	2	7
Nova Scotia Tramways & Power Company, Halifax	2	..
London Street Railway, London	1	5
PANAMA		
Panama Electric Co.	2	5

*Trolley buses (trackless trolleys)

Note—Fares quoted here do not include reduced rates for tokens, trip tickets, etc.

ELECTRIC RAILWAY LINES ON WHICH THE STREET CARS HAVE BEEN SUPERSEDED ENTIRELY BY BUSES, OPERATED EITHER BY THE SAME COMPANY OR BY A NEW ORGANIZATION

Operating Company	No. of Buses	Fare Charged (Cents)
CALIFORNIA		
Nevada County Traction Co., Colorado	2	..
COLORADO		
Greeley & Denver Railroad Co., Greeley	....	..
DISTRICT OF COLUMBIA		
Washington Interurban Railway Co.	..	..
MASSACHUSETTS		
Concord, Maynard & Hudson Street Ry. Co.	..	..
Eastern Mass. St. Ry. Co., Gloucester	..	..
Norfolk & Bristol Street Ry. Co.	..	..
NEW YORK		
Newburgh Public Service Corp., (Formerly Orange County Traction Co)	32	7
OHIO		
Springfield & Washington Ry. Co.	..	..
SOUTH CAROLINA		
South Carolina Gas & Electric Co., Spartanburg	4	6
SOUTH DAKOTA		
Aberdeen Railroad Company	3	10
VERMONT		
Twin State Gas & Electric Co., Brattleboro	3	10
VIRGINIA		
Richmond-Fairfield Electric Ry. Co.	..	..
WISCONSIN		
Wisconsin Valley Electric Co., Wausau (Controlling Valley Transit Co. and Merrill Bus)	..	10

How to Keep Motor Truck Operation and Cost Records

(Note.—A booklet "National Standard Truck Cost System" describing forms for motor truck operation and cost may be obtained free of charge from the Motor Truck Committee, National Automobile Chamber of Commerce, 366 Madison Avenue, New York. Below is shown a specific instance of a 3½-ton truck in the general trucking line).

Owner—Red Line Transfer Co. **Business**—General Trucking
Address—Des Moines, Ia. **Truck Capacity**—3½-Ton

OPERATION RECORDS

A—Total Period		B—Daily Averages	
1. Period covered	1 Year	12. Round Trips	.....
2. Days operated	275	13. Deliveries—Pickups	.....
3. Days out for Repairs	.....	14. Loads—Out	.....
4. Total Round Trips	.....	15. Loads—In	.....
5. Deliveries—Pickups	.....	16. Total Loads	.....
6. Loads—Out	.....	17. Miles Traveled	40
7. Loads—In	.....	18. Miles per Round Trip	.....
8. Total Loads	.....	19. Loads per Trip	.....
9. Miles Traveled	11,000	20. Unit Miles	.....
10. Gasoline—Gallons used	1,833	21. Miles per Gallon Gas	6
11. Cylinder Oil—Pints used	275	22. Miles per Pint Oil	40

COST RECORDS

C—Investments		E—Variable Charges—Period	
23. Chassis	$4,180.00	40. Fuel at 23 cts. Gallon	$ 421.59
24. Body	662.31	41. Cylinder Oil at 7½ cts. Pint	20.63
25. Cab	.....	42. Tires—11,000 Miles	264.00
26. Painting	.....	$360.36—15,000 Miles Life	
27. Special Equipment	.....	43. Depreciation—11,000 Miles	896.50
28.	.....	$4,481.95—55,000 Miles Life	
29.	.....	44. Maintenance and Repairs (Est.)	165.00
30. Total Investment	4,842.31	45. Driver's Wages	1,352.46
31. Tire Value	360.36	46. Total Variable Charges	3,119.72
32. Total less Tires—to be Depreciated	4,481.95	47. Total Fixed Charges	1,202.43
		48. **Total Operation Cost**	**$4,322.15**

D—Fixed Charges—Yearly		F—Daily Costs	
33. Interest on Total Inv. at 8%	$232.43		
34. Taxes and Licenses	100.00	49. Cost per Day Operated	$ 15.72
35. Insurance	250.00	50. Cost per Mile Traveled	.393
36. Garage Expenses	120.00	51. Cost per Unit Hauled	.....
36A—Administrative Overhead	500.00	52. Cost per Unit—Mile	.....
37. Total Per Annum	1,202.43	53. Repair Cost per Mile—Est	.015
38. Total per Month	100.20	54. Cost per Day—without Overhead	14.26
39. Total for Period	1,202.43	55. Cost per Mile—without Overhead	.356

Example of N. A. C. C. Standard Caution Plate

For Motor Trucks

MAXIMUM SPEED **15** MILES PER HOUR. DO NOT EXCEED. THIS VEHICLE, WHEN TESTED AT THE FACTORY, SHOWED A BRAKE CAPACITY WHICH ENABLED THE DRIVER TO STOP IT, WHEN LOADED TO ITS STATED CAPACITY AND WHEN RUNNING AT ITS MAXIMUM STATED SPEED IN **40** FEET ON A DRY, HARD LEVEL ROAD. **NOTE:** CHASSIS WEIGHT INCLUDES COMPLETE CHASSIS, FRONT FENDERS, STEP, DRIVER'S SEAT, TOOLS, LAMPS, HORN, LICENSE BRACKETS, NORMAL QUANTITY OF FUEL, LUBRICANT AND COOLING MEDIUM; BUT WITHOUT DRIVER, BODY, AUXILIARY POWER DEVICES OR EQUIPMENT.	NAME AND ADDRESS OF MANUFACTURER MADE IN U.S.A.	CHASSIS NUMBER CAUTION — OVERLOADING OR OVER SPEEDING WILL VOID YOUR WARRANTY. MAXIMUM WEIGHTS — LBS. CHASSIS (SEE NOTE) — 6,300 BODY, LOAD & EQUIP. — 8,000 GROSS WEIGHT — 14,300 FRONT AXLE (GROSS) — 6,000 REAR AXLE (GROSS) — 12,000

Etched on 16 B. & S. gauge rolled brass, with letters recessed and filled with red and black enamel.

To be Incorporated in Caution Plate when Used on Electric Trucks:

"Chassis weight includes running gear, motor, battery, cradle, driving and control mechanism, wiring, housing, tools, lamps, horn, license brackets, charging plug and cable; but without driver, battery, body, auxiliary power devices or equipment."

Note—The example given above shows how to fill in the figures. They should be stamped by hand with steel dies, and the plates should be completely filled in by the manufacturer and attached to each chassis before it leaves the factory. The center on the plate may be used by the manufacturer for model, designation, type, size or tonnage rating of chassis, if he so desires.

Speed Rating—The figures given in the table headed Standard Speed Ratings for Motor Trucks should be recognized by the manufacturer as the maximum and not exceeded under any condition Manufacturer should stamp on the truck caution plate the actual maximum speed with load for which the truck was built and beyond which the truck is not guaranteed.

Chassis Weight—This is the weight of the chassis as built by each manufacturer and may vary with wheelbase, frame length, tire equipment, etc. Manufacturer should weigh each individual chassis equipped according to note on the plate, defining chassis weight. This actual chassis weight should be stamped on the plate and plate attached to the chassis before chassis leaves the factory.

Front Axle Gross—This is the maximum weight which manufacturer will allow to be concentrated on the front wheels of the truck. It will depend largely on the tire equipment and factors of safety contained in the axles, wheels, springs and frame.

Rear Axle Gross (Weight)—This is the maximum weight which the manufacturer will allow to be concentrated on the rear wheels of the truck fully loaded. It will depend largely on tire equipment and factors of safety in the axle, wheels, springs and frame.

Gross Weight—This is the total overall weight of chassis, body, load and equipment. This gross weight may or may not be the sum of the front and the rear axle gross weights, dependent upon the allowance which the manufacturer wishes to make for the variation in load distribution, but in either case this is the most important weight on the plate, and it is the basis on which motor trucks will be rated in the near future.

Body, Load and Equipment—This is the difference between the gross weight and the chassis weight and should be stamped by the manufacturer at the time the chassis leaves the factory. In the case of electric trucks, storage battery will be included in this weight. The weight of the load is purposely lumped with the weight of the body and the weight of the equipment, and it will be necessary for the owner of the truck to actually weigh the truck after body and equipment have been mounted, and to subtract this tare weight from the gross weight in order to determine the freight load or carrying capacity of his vehicle. Most of the States require that the weight of the truck light, its capacity and its gross weight should be painted on the sides of the body. In other words, the truck owner will not be able to determine the actual capacity of his truck until he has determined the actual weight of the body, and the equipment mounted on the chassis.

Brake Capacity.—This should be determined by the manufacturer in the case of each individual chassis before it leaves the factory. A reasonable allowance should be made for variation in brake

DATA ON N. A. C. C. STANDARD CAUTION PLATE

(*Continued from preceding page.*)

adjustment. This information is furnished to assist law enforcement officers in checking up operation and adjustment of brakes. All figures used in the above plate are for purposes of illustration only. These plates should be approximately 10½" long and 3½" wide and should be riveted permanently to the chassis at some point where they can be readily seen, but from which it will never be necessary to remove them.

Note—Plate once attached to chassis should never be removed unless chassis weight is increased or decreased by changes in tires, wheels, springs, axles or frame. In case chassis weight is materially altered after chassis leaves the factory, a new plate should be attached to chassis frame with the corrected chassis weight.

Motor Truck Standards of the N. A. C. C.

(*Adopted January*, 1923)

Gross Weight, Chassis, Body and Freight Load	Speed, Miles per Hour
Pneumatic tires up to 28,000 lbs	25
Solid rubber tires, up to	
4,000 lbs	25
8,000 "	20
12,000 "	18
16,000 "	16
20,000 lbs	15
24,000 "	15
26,000 "	15
28,000 "	15

Note—The speed ratings should be recognized by the manufacturer as the maximum and not exceeded under any conditions. The manufacturer should stamp on the truck caution plate the actual maximum speed with load for which the truck is built and beyond which the truck is not guaranteed.

STANDARD BODY WEIGHT ALLOWANCES FOR MOTOR TRUCKS

Load Tons	Body Weight Allowance Pounds
1, 1½	1,200
2, 2½	1,500
3, 3½, 4	2,000
5 ton and over	2,500

Note—Weights of bodies, whether built by the vehicle manufacturer or by a body builder to the order of the purchaser, should be kept within these allowances.

STANDARD FRAME WIDTHS AND LENGTHS FOR COMMERCIAL VEHICLES

Frame Width, either 36 or 42 inches, for all sizes of commercial vehicles, measured back of seat.

Frame Length, back of seat, to be in full multiples of feet and half feet from 4 to 18 feet, thus:

Feet	Inches	Feet	Inches	Feet	Inches
4 (Equiv. to)	48	9½ (Equiv. to)	114	13 (Equiv. to)	156
5 " "	60	10 " "	120	13½ " "	162
6 " "	72	10½ " "	126	14 " "	168
7 " "	84	11 " "	132	15 " "	180
8 " "	96	11½ " "	138	16 " "	192
8½ " "	102	12 " "	144	17 " "	204
9 " "	108	12½ " "	150	18 " "	216

Note—The standard frame lengths as adopted are independent of chassis load capacity.

How to Figure

Ton-Mile Costs and the Making of Rates

Ton miles are the units for measuring truck performance. The principle of ton-mileage may be applied to any class of motor truck haulage whether the units are baskets, bundles, kegs, cases or thousands of feet of lumber. For the concern which does not do its hauling in tons the same measure of haulage may be had by simply substituting for the ton the unit best suited to measure the delivery system. Thus instead of the ton-mile we have the package-mile, multiplying the number of packages delivered by the number of miles covered in delivering them, or the keg-mile or the case-mile.

EXAMPLES:

(1) Actual ton-mileage—5-ton load carried 5 miles, returning empty. (5 tons x 5 miles) plus (0 tons x 5 miles) = 25 ton-miles.

(2) 5-ton load carried 5 miles, returning with 5 tons. (5 tons x 5 miles) plus (5 tons x 5 miles) = 50 ton-miles.

(3) Truck starts on a round trip of 22 miles loaded with 5 tons. After 2 miles it delivers 1 ton; travels 3 miles further and delivers 2½ tons; 4 miles further and delivers ½ ton; 2 miles further and delivers 1 ton, when the truck is empty. The truck is then loaded with 5 tons and returns 11 miles.

Miles	Tons	Ton-miles
2	5	10
3	4	12
4	1½	6
2	1	2
11	5	55
22	**Total.....**	**85 ton-miles**

Commercial Ton-mileage:—

(1) 5-ton load carried 5 miles, returning empty.
$$\frac{5 \text{ tons x } 10 \text{ miles}}{2} = 25 \text{ commercial ton-miles.}$$

(2) 5-ton load carried 5 miles, returning full.
$$\frac{10 \text{ tons x } 10 \text{ miles}}{2} = 50 \text{ commercial ton-miles.}$$

(3) Same as above.
$$\frac{10 \text{ tons x } 22 \text{ miles}}{2} = 110 \text{ commercial ton-miles.}$$

Operating Costs on a Baltimore Milk Route

The normal transportation charge by motor truck in the Baltimore territory is 3 cents per gallon or 30 cents for a 10-gallon can. On a certain milk route which starts at a point about 5 miles from a hard-surfaced highway, milk producers are required to pay one-half cent a gallon in addition to the regular 3 cent rate between October 1 and April 1. Practically the whole truck load of milk is collected along this stretch of unimproved highway 5 miles long. For the 1,000 gallons brought in every day, the farmers and milk producers are accordingly required to pay $5.00 a day in addition for transportation because of the inferior type of highway, or a total of $900 for the six-months period. The penalty for an unimproved road is assessed against these milk shippers at a rate of $180 a mile. According to this actual outlay, the farmers could afford to make road improvements to the extent of $3,600 a mile if no other traffic was benefited at all than this one truck load of milk.—*Henry R. Trumbower, Economist, U. S. Bureau of Public Roads.*

18,023,584 Motor Vehicles in World

88% in U. S. A.

(Figures from Automotive Division, U. S. Department of Commerce)

COUNTRY	Passenger Cars	Trucks	Total Cars and Trucks	COUNTRY	Passenger Cars	Trucks	Total Cars and Trucks
Aden	320	23	343	Hawaii	16,825*	.....	16,825
Alaska	550*	175*	725	Honduras	210	30	240
Algeria	8,715b	.....	8,715	Hongkong	698	101	799
Angola	500*b	.....	500	Hungary	2,363	599	2,962
Arabia	285*	15*	300	Iceland & Faroe Islands	135*	40*	175
Argentina	85,000	850*	85,850	India	44,845	3,784	48,629
Australia	109,157	8,934	118,091	Irish Free State	10,500*	5,500*	16,000
Austria	10,743	3,582	14,325	Italy	45,000*	30,000*	75,000
Azores	180	21	201	Jamaica	2,206	611	2,817
Bahama Islands	400*	151	551				
Barbados	1,000*	125	1,125	Japan	8,000*	2,500*	10,500
Belgian Kongo	45*b	.....	45	Latvia	264	134	398
Belgium	45,000*	12,000*	57,000	Liberia	1	3	4
Bolivia	400*	50*	450	Lithuania	400*	250*	650
Brazil	26,400*	1,600*	28,000	Madagascar	200*	55*	255
Brit. E. Africa	1,780	125	1,905	Madeira Island	154	30	184
Brit. Guiana	1,300*	100*	1,400	Malta	350*	120*	470
Brit. Honduras	79	20	99	Martinique	918	65	983
Brit. Malaya	4,000*b	.....	4,000	Mauritius	1,733	139	1,872
Brit. Oceania	99	53	152	Mesopotamia	150*b	.....	105
Brit. S. Africa	38,000*b	.....	38,000	Mexico	21,084	3,401	24,485
Brit. W. Africa	3,125*	2,925*	6,050	Morocco	3,715	1,662	5,377
Bulgaria	600*	145*	745	Netherlands	14,634	3,855	18,489
Canada	554,874a	87,697a	642,571	Newfoundland	800*b	.....	800
Canary Island	1,305	554	1,859	New Zealand	44,864	.....	44,864
Ceylon	3,496	566	4,062	Nicaragua	200*b	.....	200
Chile	7,600*	400*	8,000	Norway	10,027	2,836	12,863
China	7,975	872	8,847	Palestine	1,000*b	.....	1,000
Chosen	1,050*b	.....	1,050	Panama C. Z	1,788	339	2,127
Colombia	2,200*	230*	2,430	Panama Repb	750*	65*	815
Costa Rica	300*	25*	325	Paraguay	450*	7	457
Cuba	20,000*	6,500*	26,500	Persia	850	15*	865
Czechoslovakia	6,858	2,301	9,159	Peru	2,400*	1,100*	3,500
Danzig	1,051	84	1,135	Philippine Island	11,200*	4,200*	15,400
Denmark	42,201b	.....	42,201	Poland	8,000*	2,000*	10,000
Dom. Republic	1,767	343	2,110	Porto Rico	8,000*	1,500*	9,500
Dutch E. Indies	29,910	3,241	33,151	Portugal	9,000*	600*	9,600
Dutch Guiana	140*b	.....	140	Portu. E. Afr	292	93	385
Dutch W. Indies	296	25	321	Rumania	7,500*	2,250*	9,750
Ecuador	590*	30*	620	Russia	14,000*	.....	14,000
Egypt	6,000*	650*	6,650	Salvador	500*	25*	525
Esthonia	250*	180*	430	Samoa	110*	60*	170
Finland	1,500*	800*	2,300	Siam	1,771	170	1,941
Fiume	135	66	201	Spain	45,000*	8,000*	53,000
France	352,259	92,553	444,812	Sweden	35,000*	8,000*	43,000
French Guiana	110b	.....	110	Switzerland	16,697	6,342	23,039
Fr. Indo-China	3,922	350	4,272	Syria	1,473	447	1,920
Fr. Oceania	140*	30*	170	Taiwan	100*	30*	130
Fr. W. Africa	500*	290*	790	Trinidad	1,600*	450*	2,050
Germany	100,329	51,739	152,068	Tunis	2,895	324	3,219
Gibraltar	150*b	.....	150	Turkey	1,200*	200*	1,400
Gold Coast	4,000*b	.....	4,000	United Kingdom	469,490	173,363	642,853
Greece	4,000*	800*	4,800	United States	13,464,608	1,627,569	15,092,177
Guadeloupe	543	47	590	Uruguay	12,400*	600*	13,000
Guatemala	545	30	575	Venezuela	3,400*	400*	3,800
Haiti	600*	85*	685	Yugoslavia	1,800*	514	2,314
				Total	**15,847,824**	**2,175,760**	**18,023,584**

*Estimated.

aPreliminary revision, supplied by Automotive Industries, of estimate published in Commerce Reports, February 11, 1924.

bPassenger cars and trucks combined; in a few instances, all motor vehicles, including motor cycles.

15,092,177 Motor Vehicles

2,753,802 Numerical Gain,

One Motor Vehicle to Every 7 Persons—
29 States Report Truck Fees Separately—
New York Has Most Motor Vehicles, 1,204,213—
Total License, Revenues, Fees, $188,970,992.24—

TABULATION BY STATES OF MOTOR VEHICLE REGISTRATION

(Figures from Bureau of Public Roads,

STATES	Grand Total Motor Vehicles	Private Passenger Cars	Motor Trucks	Taxis, Busses and Cars for Hire[1]	Motor-Cycles
Alabama	126,642	109,535	13,845	3,262	599
Arizona	49,175	42,176	6,565	434	392
Arkansas	113,300	102,000	11,300	.....	300
California	1,100,283	1,056,756	43,527	.....	14,694
Colorado	188,956	175,669	13,287	.....[2]	2,473
Connecticut	181,748	148,791	29,140	3,817	4,450
Delaware	29,977	24,709	5,268	.....	467
District of Columbia[3]	74,811[3]	65,681[3]	7,187[3]	1,943[3]	1,772
Florida	151,990	125,140	23,530	3,320	975
Georgia	173,889	151,325	22,469	95	1,011
Idaho	62,379	57,200	5,179	.....	655
Illinois	969,331	847,005	122,326	.....	7,611
Indiana	583,342	510,114	73,228	.....	6,042
Iowa	571,061	534,796	36,265	.....	3,044
Kansas	375,594	349,038	26,556	.....[4]	1,950
Kentucky	198,377	177,834	20,543	.....	844
Louisiana	136,622	116,003	20,619	.....	400
Maine	108,609	90,177	15,614	2,818	1,400
Maryland	169,351	153,661	11,609	4,081	4,846
Massachusetts	481,150	407,645	73,505	.....	11,033
Michigan	730,658	657,148	72,000	1,510	4,165
Minnesota	448,187	399,404	48,783	.....	3,220
Mississippi	104,286	93,846	10,440	.....[2]	114
Missouri	476,598	430,340	46,258	.....	2,570
Montana	73,828	65,449	8,379	.....	374
Nebraska	286,053	259,382	26,671	.....	1,608
Nevada	15,699	13,699	2,000	.....	112
New Hampshire	59,604	52,608	6,996	.....[4]	1,987
New Jersey	430,958	330,552	89,105	11,301	8,811
New Mexico	32,032	29,032	3,000	.....	215

[1]Where no data are given these vehicles are not registered as a separate class, but included with passenger cars or trucks. [2]Included with passenger cars. [3]Includes re-registrations but does not include non-resident registrations. [4]Included with trucks.

(Continued on

Registered in U. S.

22.5% Growth Over 1922

135 Motor Vehicles Per 1000 Persons
Texas Only State Not Listing Truck Registrations
California Leads in Motor Vehicles Per Capita, 1 to 3 Persons

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LICENSES, REVENUES FOR CALENDAR YEAR 1923

U. S. Department of Agriculture)

REGISTRATION FEES, LICENSES AND PERMITS		AMOUNT OF REGISTRATION FEES PAID FOR		
Total Gross Receipts	Amount Applicable to Highway Work by or Under Supervision of State Highway Department	Private Passenger Cars	Motor Trucks	STATE
$1,541,017.56	$1,204,449.02	$.....	$.....	.....Alabama
281,670.75	281,670.75	.....	.....	.....Arizona
1,435,090.00	430,527.12	1,224,000.00	192,100.00	.....Arkansas
10,608,544.00	4,906,015.00	9,081,836.00	814,138.00	.....California
1,126,218.55	534,953.81	898,666.40	153,741.57	.....Colorado
4,329,432.16	4,329,432.16	2,302,154.23	956,368.93	.....Connecticut
516,209.00	516,209.00	287,950.00	108,379.00	.....Delaware
357,918.00	.....	.....	.....	... District of Columbia
1,963,065.99	1,394,528.58	.....	.....	.....Florida
2,156,406.08	2,095,762.60	1,756,219.20	344,831.04	.....Georgia
914,014.58	229,840.14	807,678.15	87,309.43	.....Idaho
9,653,796.04	9,653,796.04	7,132,472.16	1,820,379.48	.....Illinois
3,693,715.00	3,492,498.00	2,651,084.00	794,003.00	.....Indiana
8,827,062.99	8,000,000.00[4]	.....	.....	.....Iowa
3,435,606.00	1,750,000.00[5]	.....	.....	.....Kansas
2,678,732.89	2,678,732.89	.....	.....	.....Kentucky
2,191,240.81	2,191,240.81	1,800,186.81	336,000.00	.....Louisiana
1,660,268.17	1,474,383.39	.....	.....	.....Maine
3,536,955.20	3,183,259.68	2,230,333.05	461,539.95	.....Maryland
6,989,633.25	6,639,155.42	4,314,529.50	1,117,834.00	.....Massachusetts
10,500,786.05	4,741,624.91	8,135,757.89	1,225,958.00[9]	.....Michigan
7,316,772.03	7,316,772.03	6,212,601.93	959,495.66	.....Minnesota
1,077,616.22	580,852.12	.....	.....	.....Mississippi
4,016,383.60	4,016,383.60[10]	.....	.....	.....Missouri
729,621.50	73,325.64[11]	604,663.75	93,162.75	.....Montana
3,353,175.32	2,932,242.63	2,754,430.61	498,750.99	.....Nebraska
153,888.10	144,992.15[12]	119,798.10	30,000.00	.....Nevada
1,571,326.96	1,464,096.88	.....	.....	.....New Hampshire
7,653,780.37	7,515,116.03	3,069,466.75	2,407,423.50	.....New Jersey
295,000.00	280,250.00	251,995.00	36,000.00	.....New Mexico

[4]Approximate. [5]Approximate amount available for state aid road work. [9]Includes receipts from taxicabs, motor busses and cars for hire. [10]For state highway work and financing state highway bonds. [11]State's share for period January 1 to April 1 when new law becomes effective. [12]Includes $48,115.00 used to finance state highway bonds.

two following pages)

Motor Vehicle Registrations

(*Continued from*

STATES	Grand Total Motor Vehicles	Private Passenger Cars	Motor Trucks	Taxis, Busses and Cars for Hire[1]	Motor-Cycles
New York	1,204,213	962,681	203,846	37,686	22,153
North Carolina[12]	246,812	225,488	21,324	.....[2]	1,300
North Dakota	109,266	105,958	3,287	21	645
Ohio	1,069,100	927,200	141,900	.....	15,000
Oklahoma	307,000	288,424	18,576	.....[2]	823
Oregon	165,962[a]	152,135[16]	12,987	840	3,140
Pennsylvania	1,043,770	969,361[17]	74,409	.....	19,220
Rhode Island	76,312	60,620	13,930	1,762	1,575
South Carolina	127,467	115,892	11,575	.....	547
South Dakota	131,700	121,164	10,536	.....	471
Tennessee	173,365	154,181	19,184	.....	751
Texas	688,233	688,233[18]	.....[3]	.....	3,346
Utah	59,525	51,625	7,900	.....	766
Vermont	52,776	49,420	3,356	.....	839
Virginia	218,896	187,977	30,919	.....	1,813
Washington	258,264	218,580	37,100	2,584	3,560
West Virginia	157,924	143,548	7,456[19]	6,920	1,353
Wisconsin	457,271	422,718	34,553	.....[3]	5,645
Wyoming	39,831	35,294	4,537	.....[2]	291
Totals	**15,092,177**	**13,457,214**	**1,552,569***	**82,394**	**171,372**

[2]Included with passenger cars. [15]Includes ambulances and commercial cars under 1 ton capacity. [17]Includes 88,650 commercial vehicles having a chassis weight of less than 2,000 pounds. [18]Includes motor trucks. [19]Solid tire vehicles only. *See p. 39 for total of motor trucks and other commercial vehicles.

566,486 Motor Vehicles in Canada

(*Figures from Automotive Industries in Canada*)

Province	Passenger Cars		Motor Trucks		Total	
	1922	1923	1922	1923	1922	1923
Ontario	210,333	245,815	24,164	28,612	234,497	274,427
Quebec	51,596	59,998	6,731	8,961	58,667	68,959
Saskatchewan	57,336	60,931	1,500	2,086	58,836	63,017
Alberta	38,913	39,742	2,102	2,191	41,015	41,933
Manitoba	38,215	39,087	1,749	2,428	39,964	41,515
British Columbia	33,000	33,500	1,500	6,000	34,500	39,500
Nova Scotia	14,177	16,104	1,707	1,999	15,884	18,103
New Brunswick	12,609	15,409	904	1,193	13,513	16,602
Prince Edward Island	2,059	2,331	87	99	2,146	2,430
Total	**458,578**	**512,917**	**40,444**	**53,569**	**499,022**	**566,486**

Licenses, and Revenues for 1923

two preceding pages)

REGISTRATION FEES, LICENSES AND PERMITS		AMOUNT OF REGISTRATION FEES PAID FOR		
Total Gross Receipts	Amount Applicable to Highway Work by or Under Supervision of State Highway Department	Private Passenger Cars	Motor Trucks	STATE
$19,862,441.52	$14,896,831.14	$11,689,802.97	$5,391,418.25	.....New York
3,728,044.72	3,700,000.00[4]	.....	.....	.....North Carolina[13]
760,852.45	760,444.45	.....	.....	.....North Dakota
9,662,370.29	4,832,962.25	.....	.....	.....Ohio
3,217,770.84	2,895,000.00[14]	.....	.....	.....Oklahoma
4,069,609.40	2,924,707.05[15]	.....	.....	.....Oregon
15,844,303.80	15,844,303.80	9,944,691.80	3,410,031.50	.....Pennsylvania
1,286,659.47	1,196,909.47	727,704.72	275,240.27	.....Rhode Island
902,608.69	722,086.95	728,644.01	153,593.69	.....South Carolina
1,130,959.27	1,055,175.80	.....	.....	.....South Dakota
2,049,653.27	2,028,806.14	.....	.....	.....Tennessee
5,441,508.59	2,368,569.43	.....	.....	.....Texas
430,104.72	430,104.72[16]	.....	.....	.....Utah
938,860.30	860,803.03	674,868.63	83,394.50	.....Vermont
3,200,161.66	3,200,161.66	2,422,993.72	482,670.25	.....Virginia
3,898,597.77	3,741,167.81	2,726,121.45	843,041.92	.....Washington
2,608,508.37	2,608,508.37[10]	1,940,093.23	229,157.66	.....West Virginia
4,958,933.55	4,693,887.30	4,227,180.00	625,619.55	.....Wisconsin
414,096.39	414,096.39[18]	314,003.00	89,202.00	.....Wyoming
$188,970,992.24	**$153,226,636.16**	**$91,031,927.06**	**$24,020,784.89**	**.....Totals**

[4]Approximate. [10]For state highway work and financing state highway bonds. [14]To be expended by counties under general regulation made by state highway department. [16]To finance state highway bonds.

The Big Four

In Motor Vehicle Registration

STATE	Total Registration	Rank	No. of Persons per Motor Vehicle	Rank	Numerical Increase	Rank	Percent Increase	Rank
New York....	1,204,213	1st	9	37th	201,920	4th	20%	35th
California....	1,100,283	2nd	3	1st	238,476	1st	28%	17th
Ohio.....	1,069,100	3rd	6	12th	210,384	3rd	25%	23rd
Pennsylvania.	1,043,770	4th	9	35th	214,033	2nd	26%	21st

Note—These figures are based on population figures for 1923 as estimated by the U. S. Actuary in the Report of the Comptroller of the Currency.

Motor Vehicle Registrations 1918-1923

(Figures from U. S. Bureau of Public Roads)

STATE	1918	1919	1920	1921	1922	1923
Alabama	46,171	58,898	74,637	82,366	90,052	126,642
Arizona	23,905	28,979	34,601	35,611	38,034	49,175
Arkansas	41,458	49,450	59,082	67,408	84,596	113,300
California	407,761	477,450	583,623	680,614	861,807	1,100,283
Colorado	83,244	104,865	129,255	145,739	162,328	188,956
Connecticut	86,067	102,410	119,134	134,141	152,977	181,748
Delaware	12,955	16,152	18,300	21,413	24,560	29,977
District of Columbia	30,490	35,400	34,161	40,625	52,792(1)	74,811
Florida	54,186	55,400	73,914	97,957	116,170	151,990
Georgia	104,676	137,000	146,000	131,976	143,423	173,889
Idaho	32,289	42,220	50,861	51,294	53,874	62,379
Illinois	389,620	478,438	568,924	663,348	781,974	969,331
Indiana	227,160	227,255	333,067	400,342	469,939	583,342
Iowa	278,313	364,043	437,378	461,084	500,158	571,061
Kansas	189,163	228,600	294,159	289,539	327,194	375,594
Kentucky	65,884	90,008	112,683	126,802	154,021	198,377
Louisiana	40,000	51,000	73,000	77,885	102,284	136,622
Maine	44,572	53,425	62,907	77,527	92,539	108,609
Maryland (2)	74,666	95,634	102,841	136,249	165,624	169,351
Massachusetts	193,497	247,182	274,498	360,732	385,231	481,150
Michigan	262,125	325,813	412,717	476,452	578,210	730,658
Minnesota	204,458	259,741	324,166	323,475	380,557	448,187
Mississippi	48,400	59,000	68,486	65,039	77,571	104,286
Missouri	188,040	244,363	297,008	346,437	392,523	476,598
Montana	51,053	59,324	60,650	58,785	62,650	73,828
Nebraska	173,374	200,000	219,000	238,704	256,654	286,053
Nevada	8,159	9,305	10,464	10,821	12,116	15,699
New Hampshire	24,817	31,625	34,680	42,039	48,406	59,604
New Jersey	155,519	190,873	227,737	272,994	342,286	430,958
New Mexico	17,647	18,082	22,100	22,559	25,473	32,032
New York	459,288	566,511	676,205	812,031	1,002,293	1,204,213
North Carolina	72,313	109,017	140,860	148,627	182,550	246,812
North Dakota	71,678	82,885	90,840	92,644	99,052	109,266
Ohio	412,775	511,031	621,390	720,634	858,716	1,069,100
Oklahoma	121,500	144,500	212,880	221,300	249,659	307,000
Oregon	63,324	83,332	103,790	118,198	134,125	165,962
Pennsylvania	394,186	482,117	570,164	689,589	829,737	1,043,770
Rhode Island	36,218	44,833	50,477	54,608	66,083	76,312
South Carolina	55,492	70,143	93,843	89,836	95,239	127,467
South Dakota	90,521	104,628	120,395	119,274	125,241	131,700
Tennessee	63,000	80,422	101,852	117,025	135,716	173,365
Texas	251,118	331,310	427,693	467,616	526,238	688,233
Utah	32,273	35,236	42,616	47,485	49,164	59,525
Vermont	22,553	26,807	31,625	37,265	43,881	52,776
Virginia	72,228	94,100	115,470	139,200	168,000	218,896
Washington	117,278	148,775	173,920	185,359	210,716	258,264
West Virginia	38,750	50,203	80,664	93,940	112,763	157,924
Wisconsin	196,253	236,290	293,298	341,841	382,542	457,271
Wyoming	16,200	21,371	23,926	26,866	30,637	39,831
Totals	**6,146,617**	**7,565,446**	**9,231,941**	**10,463,295**	**12,238,375**	**15,092,177**

(1) Includes re-registrations but does not include non-resident registrations.

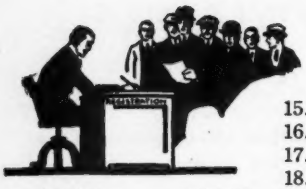
(2) Maryland registrations prior to 1923 include non-resident registrations.

Car Registration and Truck Registration Separately

(By States—1920, 1921, 1922, 1923)

State	PASSENGER CARS				TRUCKS AND COMMERCIAL CARS			
	1920	1921	1922	1923	1920	1921	1922	1923
Alabama	61,941	73,256	80,183	112,797	12,696	9,110	9,869	13,845
Arizona	29,868	31,631	33,774*	42,610	4,733	3,980	4,260*	6,565
Arkansas	52,412*	60,148*	76,696	102,000	6,670*	7,260*	7,900	11,300
California	548,723*	645,522	822,394	1,056,756	34,900*	35,092	39,413	43,527
Colorado	121,506	136,336	151,499	175,669	7,749	9,403	10,829	13,287
Connecticut	95,123	110,029	127,055	152,608	24,011	24,112	25,922	29,140
Delaware	16,270*	19,113*	21,810*	24,709	2,030*	2,300*	2,750*	5,268
District of Columbia	29,131	35,448	46,069	67,624	5,030	5,177	6,723	7,187
Florida	63,466	83,111	96,942	128,460	10,448	14,846	19,228	23,530
Georgia	134,000	117,762	126,498	151,420	12,000	14,214*	16,925	22,469
Idaho	46,541*	46,935	49,393	57,200	4,320*	4,359	4,481	5,179
Illinois	504,250	583,441	682,250	847,005	64,674	79,907	99,724	122,326
Indiana	300,226	357,025	413,410	510,114	32,841	43,317	56,529	73,228
Iowa	407,578	430,118	468,736	534,796	29,800	30,966	31,422	36,265
Kansas	272,389*	267,891	303,725	349,038	21,770*	21,648	23,469	26,556
Kentucky	99,437	111,777	136,627	177,834	13,246	15,025	17,394	20,543
Louisiana	66,000	67,311	87,003	116,003	7,000	10,574	15,281	20,619
Maine	55,395	67,591	78,697	92,995	7,512	9,936	13,842	15,614
Maryland	87,625	124,652	153,748	157,742	15,216	11,597	11,876	11,609
Massachusetts	223,112	305,471	325,307	407,645	51,386	55,261	59,924	73,505
Michigan	366,946	426,687	518,127	658,658	45,771	49,765	60,083	72,000
Minnesota	300,166*	299,100	341,322	399,404	24,000*	24,375	39,235	48,783
Mississippi	63,721	60,489*	71,000	93,846	4,765	4,550*	6,571	10,440
Missouri	267,300*	311,787*	352,929	430,340	29,700*	34,650*	39,594	46,258
Montana	59,450	56,434*	55,682	65,449	1,200	2,351*	6,968	8,379
Nebraska	200,000	219,781	233,658	259,382	19,000	18,923	22,996	26,671
Nevada	9,639*	10,000	10,759*	13,699	825*	821	1,357*	2,000
New Hampshire	30,240	36,994	42,270	52,608	4,440	5,045	6,136	6,996
New Jersey	204,125	248,477	267,777	341,853	23,612	24,517	74,509	89,105
New Mexico	20,664	21,155	23,820*	29,032	1,436*	1,404	1,653*	3,000
New York	527,332	663,478	816,435	1,000,367	148,873	148,553	185,858	203,846
North Carolina	127,405	134,884	163,600	225,488	13,455	13,743	18,950	21,324
North Dakota	88,475*	90,221	96,080	105,979	2,365*	2,423	2,972	3,287
Ohio	538,090	622,044	740,884	927,200	83,300	98,590	117,832	141,900
Oklahoma	204,300	197,465*	221,697*	288,424	8,580	23,834*	27,962*	18,576
Oregon	91,336*	103,838	118,627	152,975	12,454*	14,360	15,498	12,987
Pennsylvania	521,835	632,541	763,916	969,361	48,329	57,048	65,821	74,409
Rhode Island	40,914	44,915	53,307	62,382	9,563	9,693	12,776	13,930
South Carolina	86,711*	82,993	88,018	115,892	7,132*	6,843	7,221	11,575
South Dakota	112,589	110,997	116,144	121,164	7,806	8,277	9,097	10,536
Tennessee	90,214	102,795	119,319	154,181	11,638	14,230	16,397	19,184
Texas	379,364*	417,231*	467,299*	613,233*	48,329*	50,385*	58,939*	75,000
Utah	37,060	40,562	41,942	51,625	5,556	6,923	7,222	7,900
Vermont	28,709	33,778	41,241	49,420	2,916	3,487	2,640	3,356
Virginia	101,800	122,000	145,000	187,977	13,670	17,200	23,000	30,919
Washington	144,131	157,620	178,775	221,164	29,789	27,739	31,941	37,100
West Virginia	69,862	77,397	107,653	150,468	10,802	16,543	5,110	7,456
Wisconsin	277,093	320,577	356,143	422,718	16,205	21,264	26,399	34,556
Wyoming	21,387	23,966	27,410	35,294	2,539	2,900	3,227	4,537
Totals	8,225,859	9,346,195	10,864,128	13,464,608	1,006,082	1,118,520	1,375,725	1,627,569

*Estimated.



States Ranked in Order of Total Registrations

1. New York.....1,204,213
2. California.....1,100,283
3. Ohio.....1,069,100
4. Pennsylvania..1,043,770
5. Illinois..... 969,331
6. Michigan..... 730,658
7. Texas..... 688,233
8. Indiana..... 583,342
9. Iowa..... 571,061
10. Massachusetts.. 481,150
11. Missouri..... 476,598
12. Wisconsin..... 457,271
13. Minnesota..... 448,187
14. New Jersey.... 430,958
15. Kansas..... 375,594
16. Oklahoma..... 307,000
17. Nebraska..... 286,053
18. Washington.... 258,264
19. North Carolina. 246,812
20. Virginia..... 218,896
21. Kentucky..... 198,377
22. Colorado..... 188,956
23. Connecticut.... 181,748
24. Georgia..... 173,889
25. Tennessee..... 173,365
26. Maryland..... 169,351*
27. Oregon..... 165,962
28. West Virginia.. 157,924
29. Florida..... 151,990
30. Louisiana..... 136,622
31. South Dakota.. 131,700
32. South Carolina. 127,467
33. Alabama..... 126,642
34. Arkansas..... 113,300
35. North Dakota.. 109,266
36. Maine..... 108,609
37. Mississippi.... 104,286
38. Rhode Island... 76,312
39. D. of Columbia. 74,811†
40. Montana..... 73,828
41. Idaho..... 62,379
42. N. Hampshire.. 59,604
43. Utah..... 59,525
44. Vermont..... 52,776
45. Arizona..... 49,175
46. Wyoming..... 39,831
47. New Mexico... 32,032
48. Delaware..... 29,977
49. Nevada..... 15,699

*Figures for Maryland this year do not include non-resident registrations; in previous years these have been included.
†Includes re-registrations, but not non-resident registrations.

Numerical Increase in State Registrations

1. California.....238,476
2. Pennsylvania....214,033
3. Ohio.....210,384
4. New York.....201,920
5. Illinois.....187,357
6. Texas.....161,995
7. Michigan.....152,448
8. Indiana.....113,403
9. Massachusetts... 95,919
10. New Jersey..... 88,672
11. Missouri..... 84,075
12. Wisconsin..... 74,729
13. Iowa..... 70,903
14. Minnesota..... 67,630
15. North Carolina.. 64,262
16. Oklahoma..... 57,341
17. Virginia..... 50,896
18. Kansas..... 48,400
19. Washington..... 47,548
20. West Virginia.... 45,161
21. Kentucky..... 44,356
22. Tennessee..... 37,649
23. Alabama..... 36,590
24. Florida..... 35,820
25. Louisiana..... 34,338
26. South Carolina... 32,228
27. Oregon..... 31,837
28. Georgia..... 30,466
29. Nebraska..... 29,399
30. Connecticut..... 28,771
31. Arkansas..... 28,704
32. Mississippi..... 26,715
33. Colorado..... 26,628
34. Dist. of Columbia 22,019†
35. Maine..... 16,070
36. New Hampshire.. 11,198
37. Montana..... 11,178
38. Arizona..... 11,141
39. Utah..... 10,361
40. Rhode Island.... 10,229
41. North Dakota... 10,214
42. Wyoming..... 9,194
43. Vermont..... 8,895
44. Idaho..... 8,505
45. New Mexico..... 6,559
46. South Dakota... 6,459
47. Delaware..... 5,417
48. Maryland..... 3,727*
49. Nevada..... 3,583

*Small increase is due to the fact that non-resident registrations are not included in Maryland figures this year.
†Includes re-registrations, but not non-resident registrations.

Percentage Gain in State Registrations

1. Dist. of Columbia...42%†
2. Alabama.....41%
3. West Virginia.....40%
4. North Carolina.....35%
5. Mississippi.....35%
6. Arkansas.....34%
7. South Carolina.....34%
8. Louisiana.....33%
9. Florida.....31%
10. Texas.....31%
11. Virginia.....30%
12. Wyoming.....30%
13. Nevada.....30%
14. Arizona.....29%
15. Kentucky.....29%
16. Tennessee.....28%
17. California.....28%
18. Michigan.....26%
19. New Jersey.....26%
20. Pennsylvania.....26%
21. New Mexico.....26%
22. Massachusetts.....25%
23. Ohio.....25%
24. Indiana.....24%
25. Illinois.....24%
26. Oregon.....24%
27. New Hampshire....23%
28. Oklahoma.....23%
29. Washington.....23%
30. Delaware.....22%
31. Missouri.....21%
32. Georgia.....21%
33. Utah.....21%
34. Vermont.....20%
35. New York.....20%
36. Wisconsin.....20%
37. Connecticut.....19%
38. Montana.....18%
39. Minnesota.....18%
40. Maine.....17%
41. Colorado.....16%
42. Idaho.....16%
43. Rhode Island.....15%
44. Kansas.....15%
45. Iowa.....14%
46. Nebraska.....11%
47. North Dakota.....10%
48. South Dakota..... 5%
49. Maryland..... 2%*

*Small increase is due to the fact that non-resident registrations are not included in Maryland figures this year.
†Includes re-registrations, but not non-resident registrations.

Registration Per Capita

State	Pop. per M. V.	M. V. per 1000 persons
1. California	3	290
2. Iowa	4	231
3. Nebraska	5	213
4. Kansas	5	206
5. Nevada	5	201
6. Oregon	5	201
7. South Dakota	5	200
8. Indiana	5	192
9. Colorado	5	192
10. Wyoming	5	191
11. Michigan	5	186
12. Washington	6	179
13. Minnesota	6	178
14. Ohio	6	176
15. Dist. of Columbia	6	164†
16. North Dakota	6	163
17. Wisconsin	6	162
18. Vermont	7	149
19. Florida	7	146
20. Illinois	7	142
21. Oklahoma	7	142
22. Maine	7	140
23. Texas	7	140
24. Missouri	7	139
25. Idaho	7	134
26. New Hampshire	8	132
27. Delaware	8	132
28. Arizona	8	130
29. Utah	8	124
30. Connecticut	8	122
31. Rhode Island	8	121
32. Montana	8	121
33. New Jersey	8	120
34. Massachusetts	8	118
35. Pennsylvania	9	114
36. Maryland	9	109*
37. New York	9	108
38. West Virginia	10	103
39. Virginia	11	91
40. North Carolina	11	90
41. New Mexico	12	86
42. Kentucky	12	80
43. Louisiana	14	73
44. Tennessee	14	72
45. South Carolina	14	71
46. Arkansas	16	62
47. Mississippi	17	58
48. Georgia	17	58
49. Alabama	19	53

*Maryland totals this year do not include non-resident registrations, though they did in previous years.
†Includes re-registrations, but not non-resident registrations.

NOTE—Population figures on which these computations are based, are estimates for 1923 by the Actuary of the United States. Where states are recorded with the same figures the relative position is based on the comparison where computation is carried to decimals.

Registrations in 63 of the Largest Cities

(Figures supplied by local Chambers of Commerce, Police Departments, Automobile Trade Associations, and Chicago Municipal Reference Library)

Registrations in Cities Having More Than 100,000 Population

City	Motor Cars	Motor Trucks	Taxicabs and Jitneys	Buses	Total Vehicles
Akron, Ohio	24,000*	3,500**	.....	.....	27,500
Albany, New York	18,228	4,936	.....	604§	23,768
Baltimore, Md	71,740	4,130	1,268	138	77,276
Birmingham, Ala	23,737	3,910	752‡	.....	28,399
Boston, Mass	56,795*	13,361**	.....	.....	70,156
Bridgeport, Conn	16,000***	.....	50	70	16,120
Buffalo, New York	70,000†	16,000†	1,000‡†	.....	87,000
Canton, Ohio	10,000†	2,000†	42	20†	12,062
Chicago, Ill	218,991	40,052	5,960	230	265,233
Cincinnati, Ohio	50,000	14,000	150	55	64,205
Cleveland, Ohio	140,000	25,000	397	80	165,477
Columbus	34,889	5,041	.....	.....	39,930
Dayton, Ohio	27,000	7,000	80	.....	34,080
Denver, Colo	52,154	3,837	400	90†	56,481
Des Moines, Ia	31,683	2,800	100	.....	34,583
Detroit, Mich	204,537c	25,957c	500	200	230,594c
Duluth, Minn	8,000	2,000	98	72	10,170
Erie, Pa	12,000	500	50	20	12,570
Fall River, Mass	.....	.....	.....	.....	6,000
Fort Wayne, Ind	15,000†	5,000†	.....	.....	20,000
Fort Worth, Texas	26,000	6,000†	.....	.....	32,000
Grand Rapids, Mich	25,000†	2,000†	35†	5	27,040
Indianapolis, Ind	56,814†	5,360†	.....	.....	62,174
Jacksonville, Fla	11,650	3,060	250	40	15,000
Jersey City, N. J	9,000	4,000	.....	427	13,427
Kansas City, Mo	.....	.....	.....	.....	59,950
Knoxville, Tenn	10,000	2,000	200	200	12,400
Los Angeles, Calif	410,517c	15,065c	1,057	296	426,935c
Louisville, Ky	34,598	4,149	.....	.....	38,747
Lowell, Mass	6,530	2,725	45	.....	9,300
Memphis, Tenn	26,024c	4,780c	.....	40	30,844c
Milwaukee, Wis	54,643	8,020	205	95	72,963
Minneapolis, Minn	55,000	15,000	400	78	56,978
Nashville, Tenn	15,000	5,000	.....	.....	20,000
New Bedford, Mass	10,862†	2,260†	25	.....	13,147
New Haven, Conn	13,800	3,500	325°	.....	17,625
New York	264,888	78,915	19,787	.....	363,590
Oklahoma City, Okla	18,000	2,000	175	.....	20,175
Omaha, Neb	.....	.....	.....	.....	31,696
Pittsburgh, Pa	.....	.....	820	32	.....
Portland, Oregon	53,102c	4,472c	5,578c	.....	63,158c
Providence, R. I	25,000***	.....	340	31	25,371
Reading	10,000***	.....	60	6	10,066
Richmond, Va	14,350	2,400	110	36	16,896
Rochester, N. Y	.....	.....	.....	.....	65,000c
Salt Lake City, Utah	16,000	3,000	175	30	19,225
St. Louis, Mo	92,700	15,200	425†	100	108,425
St. Paul, Minn	41,000***	.....	115	80	41,195
Savannah, Ga	5,160	739	99	2	6,000
San Diego, Calif	25,000	650	200	50	25,900

City	Motor Cars	Motor Trucks	Taxicabs and Jitneys	Buses	Total Vehicles
San Francisco, Calif.	.....	.....	.....	.....	88,254
Schenectady, N. Y.	11,000	1,650	175	25	12,850
Spokane, Wash.	.....	.....	.....	.....	29,000
Springfield, Mass.	17,281	3,146	.....	.....	20,427
Tacoma, Wash.	162,137†	122,333	.....	.....	284,470
Tampa, Fla.	12,000	3,150	50	20	15,220
Toledo, O.	20,000	6,000	150‡	50	26,200
Trenton, N. J.	11,000***	.....	54	8	11,062
Utica, N. Y.	15,000	5,500	100	75	20,675
Washington, D. C.	91,631	8,384	1,971*	.....	101,986
Wilmington, Del.	.....	.....	79	26	.....
Worcester, Mass.	16,000	4,000	200	20	20,220
Youngstown, O.	25,000	4,800	180	102	30,082

*Taxicabs and jitneys included in motor cars.
**Buses included in motor trucks.
***Motor cars and motor trucks.
§No jitneys, taxicabs included in buses.
c—County
‡No jitneys.
°Buses, jitneys and taxicabs.
†Estimated.

NOTE—Figures are not available for 5 cities having over 100,000 population.

Registrations in 46 Cities 50,000–100,000 Population

City	Motor Cars	Motor Trucks	Taxicabs and Jitneys		Total s Vehicle
Atlantic City, N. J.	5,500	1,500	450§	.....	7,450
Austin, Texas	9,120	245	48	2	9,515
Binghamton, N. Y.	6,114	2,149c	173c§	.....	.....
Brockton, Mass.	6,500	1,400	6	12	7,918
Cedar Rapids, Ia.	9,000	800	30	.....	9,830
Charleston, S. C.	4,500	600	193	3	5,296
Covington, Ky.	5,469	950	20§	8	6,447
Davenport, Ia.	11,900	1,100	.....	.....	13,000
East Orange, N. J.	.....	.....	.....	.....	8,000
El Paso, Texas	.....	.....	.....	.....	13,988
Evansville, Ind.	12,000	2,000	65	25	14,090
Fresno, Calif.	43,823	1,847	.....	.....	45,670
Hammond, Ind.	6,600	300	150	10	7,060
Harrisburg, Pa.	10,000*	172	35	2	10,209
Haverhill, Mass.	.....	.....	.....	.....	6,000*
Holyoke, Mass.	3,800	900	40§	3	4,743
Jackson, Mich.	9,500	600	25	6	10,131
Johnstown, Pa.	8,000*	500*	20*	6*	8,526*
Kalamazoo, Mich.	15,000	750	20	12	15,782
Lancaster, Pa.	6,000	800	100	8	6,908
Lexington, Ky.	6,138	1,093	45	125	7,401
Little Rock	11,000‡	.....	50	.....	11,050
Lincoln, Nebr.	12,000*	650*	34	5	12,689
Manchester, N. H.	.....	.....	.....	.....	8,556
Montgomery, Ala.	‡5,000‡	.....	.....	3	5,003
New Britain, Conn.	5,806‡	.....	50	15	5,871
Niagara Falls, N. Y.	7,000*	2,000*	100*	10	9,110
Pasadena, Calif.	16,490‡	.....	24§	53	16,567
Portland, Me.	7,270	1,451	124	10	8,855
Portsmouth, Va.	2,700*	500*	60	8	3,268
Roanoke, Va.	5,000	1,500	150	.....	6,650
Sacramento, Calif.	25,716	1,345	.....	120	27,181
Saginaw, Mich.	12,000	3,000	35	25	15,060
Shreveport, La.	9,500	1,200	104	60	10,864
Sioux City, Ia.	12,459	1,138	50	.....	13,647
Springfield, Ohio	11,000‡	.....	.....	.....	11,000
Springfield, Ill.	8,000	4,000	.....	.....	12,000
St. Joseph, Mo.	.....	.....	.....	.....	9,048
Stockton, Calif.	10,534	536	25	20	11,115
Terre Haute, Ind.	16,845	2,732	100	20	19,697
Topeka, Kan.	10,500	1,600	64	10	12,174
Troy, N. Y.	10,438	2,407	406	20	13,271
Watertown, N. Y.	17,000c	3,000c	45c	20	20,065c
Wheeling, W. Va.	8,000	2,000‡	.....	.....	10,000
Wichita, Kan.	16,500*	1,500*	35*	40	18,075
Winston-Salem, N. C.	5,250	1,300	60	34	6,644

*Estimated.
‡Motor cars and trucks.
‡No jitneys.
cCounty.
§Motor trucks, taxicabs, jitneys and buses.
§Buses, jitneys, and taxicabs.

NOTE—Figures are not available for 30 cities in the 50,000 to 100,000 group.

Highways--1923

MILEAGE

Miles of highways in United States, Jan. 1, 1922	2,940,378
Miles of surfaced highways, federal, state and local, Jan. 1, 1924, approximately	430,000
Miles of highways surfaced in 1923, approximately	35,000

FEDERAL AID

Miles in Federal Aid 7% system, November 1, 1923	168,881
Miles of surfaced Federal Aid Roads, approximately	60,000
Construction of Federal Aid Roads, completed and paid for in 1923	8,379
Total mileage Federal Aid constructed since Enactment Federal Aid Act of 1916, as of December 31, 1923	27,211
Mileage under construction (includes 4,218 miles completed but not paid for)	18,647

EXPENDITURES

Total 1922 highway expenditures		$898,352,307*
By or under State Highway Department supervision	$429,896,572	
Local, not under State Highway Department supervision	468,455,735	
Total	$898,352,307	
Total 1923 Federal Aid payments to States		$74,883,782

*Note that this figure is for 1922; 1923 not yet available.

2,941,274 Miles of Highways in U. S.

(Figures from U. S. Bureau of Public Roads)

Totals Are for Mileage Outside of Cities and Towns

STATE	Total Mileage	Miles of Surfaced Road Jan. 1, 1922*	Miles Surfaced During Calendar year 1922*
Alabama	58,410	10,420	357.9
Arizona	21,227	1,233	413.5
Arkansas	74,866	3,871	872.5
California	75,889	14,275	988.2
Colorado	48,143	4,599	1,630.9
Connecticut	12,152	2,206	167.7
Delaware	3,933	448	479.8
Georgia (a)	94,000 (a)	18,000 (a)	1,060.0 (a)
Florida	27,643	6,438	437.9
Idaho	31,099	2,982	615.0
Illinois	96,326	11,473	962.1 (a)
Indiana	76,246	39,857	2,435.1
Iowa	104 082	2,585	839.2
Kansas	128,552	1,101	271.0
Kentucky	68,704	15,436	603.0
Louisiana	39,803	2,771	756.0
Maine	21,483	2,953	349.7
Maryland	14,772	3,663	172.4
Massachusetts	18,868	6,575	236.1
Michigan	77,283	17,186	2,570.0
Minnesota	107,103	16,904	2,077.9
Mississippi	53,085	5,744	613.3
Missouri	111,520	7,880	465.7
Montana	64,732	1,772	129.2
Nebraska	86,556	496	160.0
Nevada	26,057	168	81.4
New Hampshire	13,841	1,691	145.8
New Jersey	14,061	6,505	319.2
New Mexico	45,549	1,802	298.6
New York	81,878	18,566	1,643.5
North Carolina	68,204	16,755	2,115.9
North Dakota	106,523	709	143.8
Ohio	84,219	36,067	1,205.0
Oklahoma	134,263	2,461	187.0
Oregon	45,475	8,050	978.5
Pennsylvania	90,991	13,921	942.0
Rhode Island	2,274	753	87.0
South Carolina	61,850	6,908	548.3
South Dakota	115,485	548	326.5
Tennessee	62,546	8,878	726.1
Texas	167,685	14,883	2,103.0
Utah	23,047	2,544	442.9
Vermont	14,677	3,545	148.5
Virginia	59,080	7,260	555.0
Washington	45,816	12,061	810.6
West Virginia	35,173	1,367	191.2
Wisconsin	78,679	19,714	1,958.1
Wyoming	46,528	440	138.1
Total	**2,941,274**	**387,464†**	**35,360.1**

(a)Data approximate. †Over 400,000 on January 1, 1924.

*Figures are the latest available for classification of surfaced highways by states.

8,379 Miles of *Federal Aid* Highways Completed in 1923

(Figures from Bureau of Public Roads, U. S. Department of Agriculture)

Geographic Divisions and States	Miles
NEW ENGLAND	
Maine	59.0
New Hampshire	22.0
Vermont	12.9
Massachusetts	35.7
Rhode Island	6.6
Connecticut	40.2
	176.5
MIDDLE ATLANTIC	
New York	223.9
New Jersey	42.1
Pennsylvania	88.9
	354.9
EAST NORTH CENTRAL	
Ohio	210.2
Indiana	75.1
Illinois	15.4
Michigan	217.4
Wisconsin	338.5
	856.6
WEST NORTH CENTRAL	
Minnesota	348.0
Iowa	420.7
Missouri	282.3
North Dakota	430.9
South Dakota	324.9
Nebraska	604.6
Kansas	134.0
	2,545.4
SOUTH ATLANTIC	
Delaware	24.2
Maryland	31.6
Virgina	103.7
West Virginia	71.9
SOUTH ATLANTIC—*Continued*	
North Carolina	204.1
South Carolina	303.2
Georgia	214.8
Florida	17.7
	971.2
EAST SOUTH CENTRAL	
Kentucky	155.3
Tennessee	45.8
Alabama	39.2
Mississippi	155.8
	396.1
WEST SOUTH CENTRAL	
Arkansas	257.9
Louisiana	178.8
Oklahoma	253.8
Texas	938.0
	1,628.6
MOUNTAIN	
Montana	162.7
Idaho	12.4
Wyoming	110.2
Colorado	144.7
New Mexico	289.6
Arizona	161.0
Utah	137.8
Nevada	83.9
	1,102.4
PACIFIC	
Washington	56.4
Oregon	110.9
California	180.5
	347.7
TOTALS—All States	**8,379.2**

51% of Federal Aid Highway System Improved

System Will Total 183,776 Miles†

(Figures prepared by American Association of State Highway Officials)

STATUS OF ROAD CONSTRUCTION FEDERAL AID HIGHWAY SYSTEM

Reports from 45 of the 48 States January 1, 1924

Type	Miles with Federal Aid	Miles without Federal Aid	Total Improved	Percentages of Types
Graded and drained	10,051.69	12,164.96	22,216.65	23.5
Sand clay	3,902.75	3,524.63	7,427.38	7.9
Gravel	19,203.99	15,170.36	34,374.35	36.2
Waterbound Macadam	1,088.25	6,019.12	7,107.37	7.2
Bituminous Macadam	2,784.98	2,761.47	5,546.45	4.7
Bituminous Concrete	922.76	1,942.48	2,865.24	3.1
Concrete	7,096.46	5,727.13	12,823.59	14.5
Brick	534.24	1,037.34	1,621.58	1.8
Other types	412.43	652.47	1,064.9	1.1
Total	**46,047.55**	**48,999.96**	**95,047.51**	**100.**

Six states have made no road improvement on this System without Federal Aid—Alabama, Georgia, Kansas, Montana, Nevada and North Dakota.

†This will be the total figure when all states take advantage of the provision which permits 7% of the mileage to be under the federal aid system. The total submitted by the states and approved by the Secretary of Agriculture to date is 168,881 miles.

Status of Federal Aid Highway Construction

(Figures from Bureau of Public Roads, U. S. Department of Agriculture)

PROJECTS COMPLETED JULY 1, 1917—DEC. 31, 1923

Total Cost	$460,942,921.71
Federal Aid expended	$197,712,824.64
Miles	27,211.8

PROJECTS UNDER CONSTRUCTION FISCAL YEAR 1924:

Estimated Cost	$356,549,928.14
Federal Aid allotted	$164,389,059.96
Miles	18,647.5

PROJECTS APPROVED FOR CONSTRUCTION:

Estimated Cost	$ 48,608,626.46
Federal Aid allotted	$ 19,261,880.85
Miles	1,839.3

BALANCE OF FEDERAL AID:

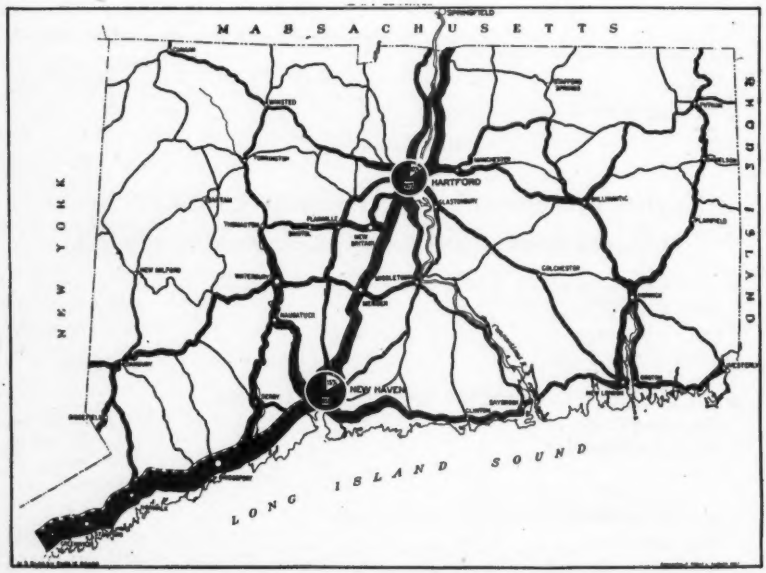
Fund Available for New Projects	$ 70,686,234.55

Analysis of 175,346 Passenger Cars and 40,613 Trucks on Connecticut Highways

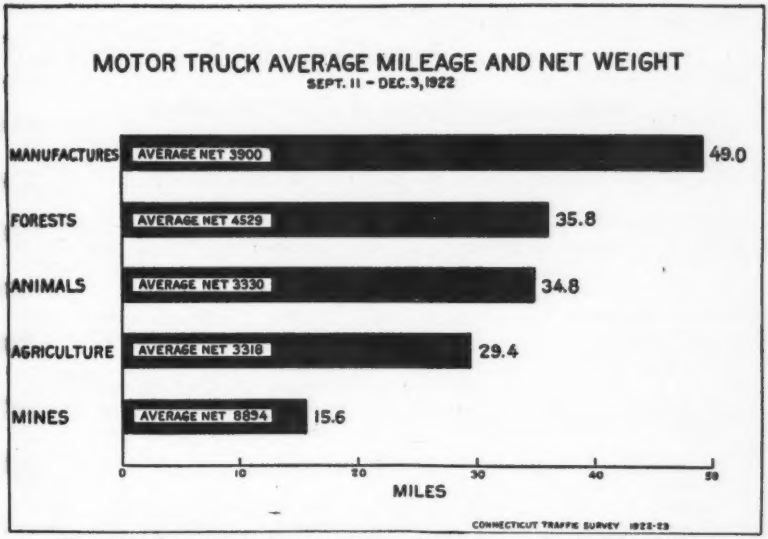
(Facts and charts from preliminary report on first three months of survey made by U. S. Bureau of Public Roads, with cooperation of Connecticut Highway Commission. The survey, though over rural highways, embraces traffic which includes a large interurban and tourist element.)

OUTSTANDING POINTS OF THE SURVEY

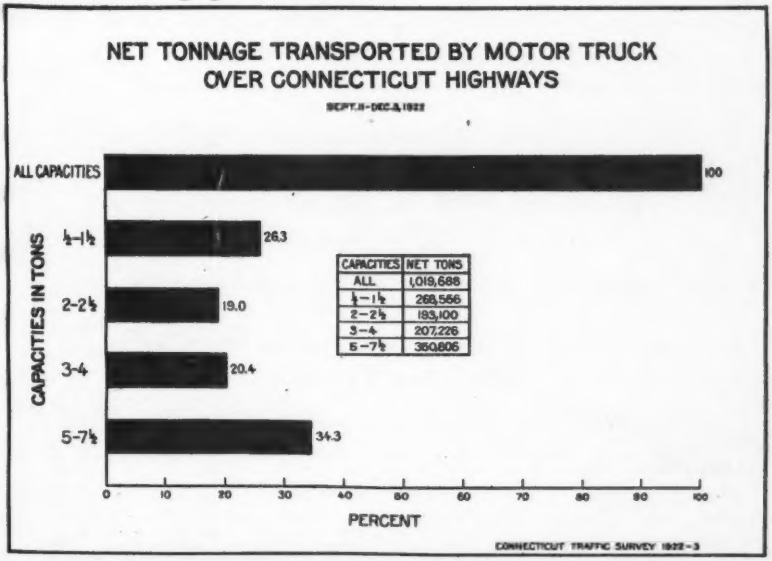
Average persons per car	2.5
Average car mileage per trip	45.1
Per cent car mileage for business	35%
Peak month of traffic	October
Per cent trucks averaging under 30 miles per trip	78.6%
Per cent total net tonnage hauled less than 30 miles	67.4%
Per cent of truck movement unloaded	33 %
Per cent of tonnage hauled on contract basis	75 %



The thickness of the line in the above map indicates the density of passenger car travel, averaging 3,000 cars per 24 hours a day at the maximum. The black and white line indicates highways having motor truck travel averaging 1,000 motor trucks per 24 hour day. Truck traffic at New Haven is 15% and at Hartford 10% of the total.



Note the short haul character of truck transportation in Connecticut—all items averaging under 50 miles.



This chart indicates the large factor of the heavy duty truck in transportation of goods in Connecticut. The heaviest classification, though 15% of the total in number of hauling units, carries 34% of the tonnage.

Cost of Motor Transportation Per Mile of Highway per Year

With Various Types of Road Surfacing

Note that as the volume of travel increases the lower grade of road becomes steadily less economical, due to the high cost of maintenance.

(Prepared by American Association of State Highway Officials. The figures assume 90% of tonnage is automobile; 10% truck, ½ of truck is pneumatic tire, ½ solid tire, and the totals are for a highway of 18 foot surface.)

Average vehicles per day... / Average tons per day.....	75 / 100	187 / 250	375 / 500	565 / 750	940 / 1,250	1,875 / 2,500
Ordinary earth.....	$4,672	$11,411	$22,524	.....	.....	.....
Best earth.....	4,520	10,718	21,049	$31,328	$52,043	.....
Ordinary gravel.....	4,761	13,132	21,442	31,868	52,718	$126,000
Best gravel.....	4,649	10,434	20,056	29,711	48,992	97,182
W. B. macadam.....	6,166	12,597	21,171	31,691	51,325	100,319
Bit. macadam.....	6,391	12,033	21,413	31,162	49,577	96,507
Sheet asphalt.....	5,635	10,951	19,812	28,674	46,393	90,702
Asphalt concrete.....	5,633	10,947	19,804	28,661	46,373	90,648
Average P. C. concrete..	5,253	10,563	19,415	28,266	45,967	90,225
Best P. C. concrete.....	5,011	9,958	18,204	26,451	42,941	84,173
Vitrified brick.....	5,682	10,990	19,843	28,696	46,395	90,648

These figures include as elements in this cost: 1. Cost of the vehicles; 2. Cost of operation of the vehicles; 3. Right of way; 4. Construction. 5. Maintenance.

P.C.—Portland Cement. W.B.—Waterbound. Bit.—Bituminous.

High Type Roads Save Kentucky Cars 2½ Cents per Mile

(Figures from article by J. T. Madison, Assistant Engineer, Kentucky Highway Department in Engineering News Record, February 28, 1924)

36 Low-Priced Touring Cars Travelling 170,794 Miles

OVER HIGH TYPE ROADS

Item	Cost	Percentage of Total Cost
Gasoline.....	$2,907.57	36.34
Oil and grease.....	526.51	6.58
Tires.....	745.80	9.32
Repairs.....	3,031.85	37.91
Storage.....	787.39	9.85
Total.....	$7,999.12	....

Average cost per mile excluding storage $0.0422.

24 Touring Cars, Same Model as Above; Travelling 98,246 Miles

OVER UNIMPROVED ROADS

Item	Cost	Percentage of Total Cost
Gasoline	$2,308.68	31.43
Oil and grease	557.33	7.59
Tires	792.55	10.79
Repairs	2,951.06	40.17
Storage	735.39	10.02
Total	$7,345.01	....

Average cost per mile excluding storage $0.0672.

Motor Vehicle Operating Costs* on Different Types of Roads

Costs in Cents per Ton Mile

(Prepared by American Association of State Highway Officials)

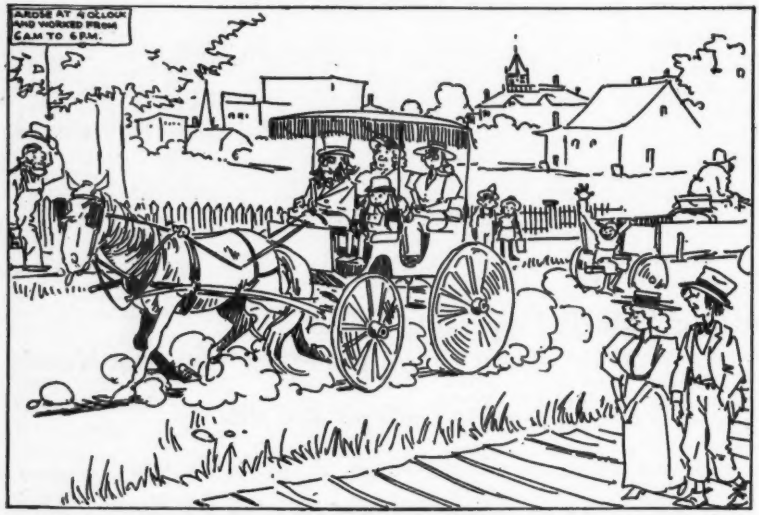
Type of Surface	Solid Tire Trucks Speed 10 M.P.H.	Pneu. Tire Trucks Speed 15 M.P.H.	Automobiles 25 to 35 M.P.H.	Motor Busses (cts. per bus-mile) 25 M.P.H.
Average P. C. Concrete and Asphalt filled brick	8.00	8.3	10.00	24.00
Best P. C. Concrete and Asphalt filled brick	7.75	7.70	9.3	22.50
Best Gravel, yearly average	8.5	8.8	10.9	25.7
Ordinary Gravel, yearly average	9.0	9.40	11.8	27.8
W. B. Macadam, well maintained	8.7	8.95	11.1	26.0
Bit. Macadam, well maintained	8.5	8.80	10.6	25.7
Average sheet asphalt yearly average temperature	8.10	8.3	10.00	24.0
Average asphaltic concrete, yearly average temperature	8.00	8.3	10.00	24.0
Best earth, well packed by traffic, yearly average	9.0	9.40	11.70	27.8
Ordinary Earth with light traffic, yearly average	9.5	9.95	12.6	29.6

*Includes depreciation but no factors of cost entirely distinct from the road, such as registration fees, property tax and garage bills.

P. C.—Portland Cement. W. B.—Waterbound. Bit.—Bituminous.

As nearly as we can determine from the studies we have made so far, the value or the difference in cost between the operation of a motor vehicle over an improved and unimproved road, is at a minimum one cent per ton mile.—*Thomas H. MacDonald, Chief of U. S. Bureau of Public Roads.*

WHAT ARE WE ALL GROUCHING SO MUCH ABOUT?



When just a few years ago a horse and buggy was possible only to those who had worked so hard for it they couldn't enjoy it; to catch a ride on a lumber wagon was a luxury, and we walked on loose board sidewalks that flew up and cracked our skins.

Reprinted from N. Y. Tribune, August 21, 1923.

State Motor Vehicle Laws

Motor Vehicle Conference Committee Formulates Sound and Equitable Principles That Should Underlie Legislation; and Strives Toward Uniformity

DURING the year 1923 the Legislatures of forty-five of the forty-eight states met in regular or special session. Approximately two thousand bills, whose contents were directly or indirectly of serious concern to the production, sale and use of the motor vehicle, were introduced and considered by these legislatures. Many of them were enacted into laws, and became effective during the year.

The subject matter of these laws relate to such important matters as:

1. Special Taxation for Motor Vehicles, including gasoline taxation, increased registration fees, etc.

2. Restrictions on Motor Vehicle Operation, especially size, weight and speed limitations.

3. State Regulation of Motor Vehicles when used as Common Carriers.

4. Licensing of Operators.

5. Compulsory and Forbidden Equipment.

6. Compulsory Liability Insurance as a prerequisite to motor vehicle operation.

7. Licensing of Auto Mechanics.

8. Garage Keepers' Lien.

9. Anti-theft Measures.

10. Compulsory Stopping at Grade Crossings.

Obviously, many measures dealing with these subjects are oftentimes based on prejudice, misinformation or lack of information. With a view, therefore, to placing at the disposal of law makers the facts involved, the Motor Vehicle Conference Committee has endeavored to gather information having a bearing upon the subjects enumerated and to formulate sound and equitable principles which, in its judgment, should underlie state laws dealing with them.

These principles have then been communicated to the law makers through the medium of Sub-Committees, which the parent body has created in each state of the Union. As a nucleus each state sub-committee contains representatives of the five component organizations constituting the main body, and in addition representatives from state-wide organizations which in each state are directly or indirectly concerned in motor vehicle and highway legislation.

Noteworthy examples of the manner in which the views of the Conference Committee have been laid first before its state sub-committees and by them before state lawmakers are a series of three pamphlets prepared on the subject of Taxation, Operating Restrictions and Common Carrier Regulation. The recommendations of these pamphlets are set forth on the following pages:

Sound and Equitable Principles to Control Special Taxation for Motor Vehicles

1. The State should be the sole special taxing agency—Federal, County and Municipal Governments should be excluded from the field.

2. There should be but one form of special taxation of the motor vehicle.

3. The total amount of special taxation should not exceed the sum of money necessary for—
   (a) The administration of the State Motor Vehicle Department.
   (b) The maintenance of improved highways of the state.

4. The term "maintenance" and the items which it should include should be sharply defined and strictly limited in application.

5. No money derived from special taxation of the motor vehicle should be spent for maintenance of highways unless such highways are located where the highway transport needs of the state require and unless such highways are built of materials and in a manner to meet these needs.

6. The total amount of such justified special taxes should be raised in a manner which most equitably distributes the cost among the various classes of vehicles and the units within each class.

7. All money raised by such special taxes should be placed in the State Motor Vehicle Highway Maintenance Fund and to secure the best results spent by the state or under state supervision on the improved highways in the order of their importance and in accordance with their maintenance needs.

8. Irrespective of the particular form of special taxation any state may adopt, whether annual registration fees based on horse-power, weight or similar factors, or motor fuel taxes, the aggregate amount of these special taxes upon the motor vehicle in any one year should not be more than is necessary to—
   (a) The administration of the State Motor Vehicle Department.
   (b) The maintenance of improved highways of the state.

Sound and Equitable Principles for State Regulation of Motor Vehicle Common Carriers

1. Control over intra-state transportation of persons and property for hire, over regular routes or between fixed points, if adopted, should be exclusively in the hands of some agency of the State. No power, whatever, in the premises should be vested in the governing bodies of any political sub-division of the State.

2. Such State control over motor vehicle common carriers should be placed in existing commissions, such as the Public Utility Commissions, etc., of the various States.

3. As a pre-requisite to the operation of the Motor Vehicle Common Carrier, the owner thereof should be obliged:
   (a) To receive a Certificate of Public Convenience and Necessity provided that lines in bona fide operation on the first calendar day of the legislative session at which the law is passed shall be presumed to be necessary to public convenience and necessity and such lines in the absence of evidence overcoming such presumption, shall receive a certificate for routes established by them.
   (b) To take out liability insurance adequate to indemnify injuries to persons or damage to property resulting from negligent operation.

4. The State Regulatory bodies having control over motor vehicle common carriers should be vested with the powers they exercise in controlling other forms of public utilities.

5. Taxes on Motor Vehicle Common Carriers should consist of:
   (a) Those imposed in the particular State upon motor vehicles, the proceeds from such taxes being limited to the maintenance of properly located and improved highways.
   (b) Proper and equitable taxes in exchange for franchise rights, provided that if such taxes are adopted, an amount equivalent to those paid under (a) should be deducted.

6. Legislation should be enacted enabling steam railroads, trolleys, shipping companies and other public utilities to acquire, own and operate motor vehicles in conjunction with their regular lines of business.

Recommended Restrictions on Motor Vehicle Sizes, Weights and Speeds

Size Restrictions

1. Width, including load, 96 inches. (Traction Engines 108 inches.)
2. Height, including load, 12 feet 6 inches.
3. Length, including load:
   (a) Single vehicle, 30 feet.
   (b) Combination of vehicles, 85 feet.

NOTE—From the foregoing it is apparent that in order to admit of the safe passage of two vehicles each of which with its load is 96 inches wide, a highway at least 20 feet in width is desirable.

Weight Restrictions

1. Single vehicular unit of four wheels or less. (Tractors and semi-trailers to be regarded as separate units)..... 28,000 pounds
2. Any one axle of the vehicle or any additional axles of semi-trailers or trailers. 22,400 pounds
3. Per inch width of tire measured between flanges of the rim in case of solid rubber tires.

Size of Tire	*Load Per Inch (Maximum)*
3"	400 pounds
3½"	400 pounds
4"	500 pounds
5"	600 pounds
6"	700 pounds
7"	750 pounds
8"	800 pounds
10"	800 pounds
12"	800 pounds
14"	800 pounds

4. Minimum thickness of Rubber for solid rubber tires:

3"; 3½"; 4"; 5" Tires	⅞"
6"; 7"; 8" Tires	1"
10" ;12"; 14" Tires	1⅛"

Speed Restrictions

In the matter of speed restrictions no motor vehicle should be operated upon a public highway at a rate of speed greater than is reasonable and proper, having regard to the traffic and use of the highway, or so as to endanger the life or limb of any person or the safety of any property, and should not in any event while upon an urban street run at a rate of speed greater than 15 miles per hour; upon a suburban street at a rate of speed greater than 20 miles per hour, or upon any other street or highway at a speed greater than 30 miles per hour.

NOTE—The laws of many states prescribe for the three types of thoroughfares indicated a graduated schedule of speed limits based on the kind of tire equipment of the vehicle and its gross weight. Such elaborate and detailed schedules, however, are very difficult to enforce.

Special Permits to Raise Restrictions

There are, of course, times when it is imperative on certain highways or portions thereof that the movement of vehicles bigger and heavier than those allowed by law be permitted.

To meet such situations—which should be the rare exception rather than the rule—the state, county or municipality exercising jurisdiction over roads and bridges should be empowered under definite limitations to grant written permits for the movement of restricted vehicles to meet emergency conditions.

Special Permits to Lower Restrictions

To deal with bad frost or other similar conditons where it is essential to lower the weight or speed restrictions ordinarily enforced, the power of the state, as centralized in its highway departments or the county or local highway authorities, after consultation with and permission from the State Highway Department, should have power to reduce the weight or speed restrictions to points deemed essential to the preservation of highways or the safeguarding of travel.

In all such cases, however, there should be public hearings on the subject; due notice of the reduced restrictions should be given to the traveling public and the highways or portions thereof affected should be properly posted.

From the nature of the case, size restrictions on the vehicle, of course, can never be reduced.

Local Powers

Except as indicated, the subordinate political sub-divisions of the state, such as counties, cities, towns, boroughs, townships, etc., should have absolutely no power to prescribe size, weight or speed restrictions at variance with those allowed for the state as a whole. The need for such limitations on local governing bodies is too obvious to require discussion.

NOTE—Copies of these pamphlets containing the above recommendations, and a complete digest of state laws in force January 1, 1924, relating to those subjects, can be obtained without charge from the MOTOR VEHICLE CONFERENCE COMMITTEE, 366 Madison Avenue, New York City.

Organization of

National Automobile Chamber of Commerce, Inc.

Marlin-Rockwell Building, 366 Madison Ave. at 46th St., New York City, U. S. A.

Washington, D. C.
Transportation Building

Detroit, Mich.
General Motors Building

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Vice-President, ROY D. CHAPIN.....Hudson Motor Car Company
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Passenger Car Division
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(Continued on following page)

Organization of National Automobile Chamber of Commerce, Inc.

(Continued from preceding page)

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E. A. DEWATERS ..... Buick Motor Company

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JAMES MCEVOY ..... Chevrolet Motor Company
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F. J. WELLS ..... The Pierce-Arrow Motor Car Company
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GEORGE M. DICKSON.....National Motors Corporation
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GEORGE H. PRIDE.....The Autocar Company
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H. E. DERR.....International Harvester Company
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E. M. STERNBERG.....Sterling Motor Truck Company
B. B. BACHMAN.....The Autocar Company

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GEORGE M. GRAHAM.....The Chandler Motor Car Company

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ALFRED H. SWAYNE.....General Motors Truck Company

REPRESENTATIVE ON HIGHWAY EDUCATION BOARD

ROY D. CHAPIN.....Hudson Motor Car Company

EDUCATIONAL DEPARTMENT

JOHN C. LONG, *Department Manager*
O. P. PEARSON, *Statistician*

FIELD REPRESENTATIVES

WALTON SCHMIDT.....Chicago
2204 S. Michigan Avenue
C. P. CLARK.....Pacific Coast
908 Haas Building, Los Angeles

Members of National Automobile

PASSENGER CAR

Trade Name of Car	*Members*	*Address*
Ambassador	Yellow Cab Mfg. Company	Chicago, Ill.
Anderson	Anderson Motor Company	Rock Hill, S. C.
Apperson	Apperson Bros. Automobile Company	Kokomo, Ind.
Auburn	Auburn Automobile Company	Auburn, Ind.
Brewster	Brewster & Company	Long Island City, N. Y.
Buick	Buick Motor Company	Flint, Mich.
Cadillac	Cadillac Motor Car Company	Detroit, Mich.
Case	J. I. Case T. M. Company	Racine, Wis.
Chalmers	Chalmers Motor Company	Detroit, Mich.
Chandler	Chandler Motor Car Company	Cleveland, Ohio
Checker	Checker Cab Mfg. Corp.	Kalamazoo, Mich.
Chevrolet	Chevrolet Motor Company	Detroit, Mich.
Chrysler	Maxwell Motor Corporation	Detroit, Mich.
Cleveland	Cleveland Automobile Company	Cleveland, Ohio
Cole	Cole Motor Car Company	Indianapolis, Ind.
Columbia	Columbia Motors Company	Detroit, Mich.
Cunningham	Jas. Cunningham Son & Company	Rochester, N. Y.
Davis	Geo. W. Davis Motor Car Company	Richmond, Ind.
Dixie Flyer	Kentucky Wagon Mfg. Company	Louisville, Ky.
Dodge Brothers	Dodge Brothers	Detroit, Mich.
Dorris	Dorris Motor Car Company	St. Louis, Mo.
Dort	Dort Motor Car Company	Flint, Mich.
duPont	duPont Motors, Inc.	Moore, Pa.
Durant	Durant Motor Co. of Michigan	Lansing, Mich.
Elcar	Elcar Motor Company	Elkhart, Ind.
Essex	Essex Motors	Detroit, Mich.
Flint	Locomobile Company of America	Bridgeport, Conn.
Franklin	H. H. Franklin Manufacturing Company	Syracuse, N. Y.
Gardner	Gardner Motor Company	St. Louis, Mo.
Gray	Gray Motor Corporation	Detroit, Mich.
Hanson	Hanson Motor Company	Atlanta, Ga.
Haynes	Haynes Automobile Company	Kokomo, Ind.
H. C. S.	H. C. S. Motor Car Company	Indianapolis, Ind.
Hudson	Hudson Motor Car Company	Detroit, Mich.
Hupmobile	Hupp Motor Car Corporation	Detroit, Mich.
Jewett	Paige-Detroit Motor Car Company	Detroit, Mich.
Jordan	Jordan Motor Car Company	Cleveland, Ohio
Kissel	Kissel Motor Car Company	Hartford, Wis.
Lafayette	Lafayette Motors Company	Milwaukee, Wis.
Lexington	Lexington Motor Company	Connersville, Ind.
Lincoln	Lincoln Motor Company	Detroit, Mich.

Chamber of Commerce, Inc.

MANUFACTURERS

Trade Name of Car	*Members*	*Address*
Locomobile	Locomobile Company	Bridgeport, Conn.
McFarlan	McFarlan Motor Corp.	Connersville, Ind.
Marmon	Nordyke & Marmon Company	Indianapolis, Ind.
Maxwell	Maxwell Motor Corporation	Detroit, Mich.
Mercer	Mercer Motors Company	Trenton, N. J.
Moon	Moon Motor Car Company	St. Louis, Mo.
Nash	Nash Motors Company	Kenosha, Wis.
National	National Motor Car & Vehicle Corp	Indianapolis, Ind.
Oakland	Oakland Motor Car Company	Pontiac, Mich.
Oldsmobile	Olds Motor Works	Lansing, Mich.
Overland	Willys-Overland Company	Toledo, Ohio
Packard	Packard Motor Car Company	Detroit, Mich.
Paige	Paige-Detroit Motor Car Company	Detroit, Mich.
Peerless	Peerless Motor Car Company	Cleveland, Ohio
Pierce-Arrow	The Pierce Arrow Motor Car Company	Buffalo, N. Y.
Premier	Premier Motor Corporation	Indianapolis, Ind.
Princeton	Durant Motor Co. of Indiana	Muncie, Ind.
Rauch & Lang	Rauch & Lang, Inc.	Chicopee Falls, Mass.
Reo	Reo Motor Car Company	Lansing, Mich.
Rickenbacker	Rickenbacker Motor Company	Detroit, Mich.
Roamer	Roamer Motor Car Company	Kalamazoo, Mich.
R. & V. Knight	R. & V. Motor Company	E. Moline, Ill.
Sayers	Sayers & Scovill Company	Cincinnati, Ohio
Star	Durant Motor Company of New Jersey	Elizabeth, N. J.
Stearns-Knight	F. B. Stearns Company	Cleveland, Ohio
Stephens	Stephens Motor Car Company	Freeport, Ill.
Stevens-Duryea	Stevens-Duryea, Inc.	Chicopee Falls, Mass.
Studebaker	The Studebaker Corporation	South Bend, Ind.
Stutz	Stutz Motor Car Company of America	Indianapolis, Ind.
Templar	Templar Motors Company	Cleveland, Ohio
Velie	Velie Motors Corporation	Moline, Ill.
Westcott	Westcott Motor Car Company	Springfield, Ohio
Wills-St. Claire	Wills St. Claire Company	Marysville, Mich.
Willys-Knight	Willys-Overland Company	Toledo, Ohio
Winton	The Winton Company	Cleveland, Ohio
Yellow-Taxicab	Yellow Cab Mfg. Co.	Chicago, Ill.

MOTOR TRUCK MANUFACTURERS

Trade Name of Truck	*Members*	*Address*
Acme	Acme Motor Truck Company	Cadillac, Mich.
Am. La France	American La France Fire Engine Co.	Elmira, N. Y.
Atterbury	Atterbury Motor Car Company	Buffalo, N. Y.
Autocar	Autocar Company	Ardmore, Pa.
*Buick	Buick Motor Company	Flint, Mich.
*Chevrolet	Chevrolet Motor Company	Detroit, Mich.
Clydesdale	Clydesdale Motor Truck Company	Clyde, Ohio
Commerce	Commerce Motor Car Company	Ypsilanti, Mich.
Corbitt	Corbitt Motor Truck Company	Henderson, N. C.
*Cunningham	Jas. Cunningham Son & Company	Rochester, N. Y.
Denby	Denby Motor Truck Company	Detroit, Mich.
Diamond T	Diamond T Motor Car Company	Chicago, Ill.
*Dodge Brothers	Dodge Brothers	Detroit, Mich.
*Dorris	Dorris Motor Car Company	St. Louis, Mo.
*Dort	Dort Motor Car Company	Flint, Mich.
Duplex	Duplex Truck Company	Lansing, Mich.
Federal	Federal Motor Truck Company	Detroit, Mich.
Garford	Garford Motor Truck Company	Lima, Ohio
G. M. C.	General Motors Truck Company	Pontiac, Mich.
Graham	Graham Brothers	Evansville, Ind.
*Gray	Gray Motor Corp.	Detroit, Mich.
International	International Harvester Company	Chicago, Ill.
Kelly-Springfield	Kelly-Springfield Motor Truck Co.	Springfield, Ohio
*Kissel	Kissel Motor Car Company	Hartford, Wis.
Kleiber	Kleiber & Company	San Francisco, Cal
Maccar	Maccar Truck Company	Scranton, Pa.
Mack	Mack Bros. Motor Car Company	New York, N. Y.
Mason	Mason Motor Truck Co.	Flint, Mich.
*Maxwell	Maxwell Motor Corporation	Detroit, Mich.
Moreland	Moreland Motor Truck Company	Los Angeles, Cal.
*Nash	Nash Motors Company	Kenosha, Wis.
*Oldsmobile	Olds Motor Works	Lansing, Mich.
*Overland	Willys-Overland Company	Toledo, Ohio
*Pierce-Arrow	Pierce-Arrow Motor Car Company	Buffalo, N. Y.
Rainier	Rainier Motor Corporation	Flushing, N. Y.
*Reo	Reo Motor Car Company	Lansing, Mich.
Republic	Republic Motor Truck Company	Alma, Mich.
Rowe	Rowe Motor Manufacturing Company	Lancaster, Pa.
Sanford	Sanford Motor Truck Company	Syracuse, N. Y.
*Sayers	Sayers & Scovill Company	Cincinnati, Ohio
Schacht	G. A. Schacht Motor Truck Company	Cincinnati, Ohio
Selden	Selden Truck Corporation	Rochester, N. Y.
Service	Service Motors, Inc.	Wabash, Ind.
Standard	Standard Motor Truck Company	Detroit, Mich.
Sterling	Sterling Motor Truck Company	Milwaukee, Wis.

*Manufacturers of passenger cars also.

(*Continued on following page*)

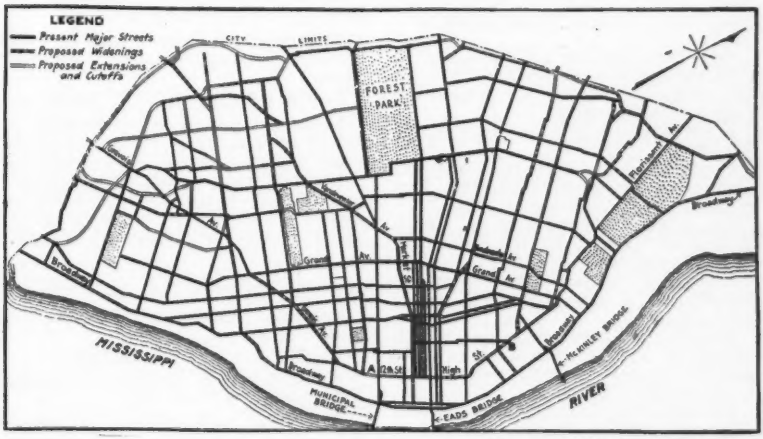
Motor Truck Manufacturers

(*Continued from preceding page*)

Trade Name of Truck	*Members*	*Address*
Stewart	Stewart Motor Corporation	Buffalo, N. Y.
Traylor	Traylor Eng. and Mfg. Company	Cornwells Heights, Pa.
*Velie	Velie Motors Corporation	Moline, Ill.
Vim	Vim Motor Truck Company	Philadelphia, Pa.
Walter	Walter Motor Truck Company	New York, N. Y.
Ward	Ward Motor Vehicle Company	Mt. Vernon, N. Y.
White	The White Motor Company	Cleveland, Ohio
Wilson	J. C. Wilson Company	Detroit, Mich.
*Yellow	Yellow Cab Mfg. Company	Chicago, Ill.

*Manufacturers of passenger cars also.

St. Louis Plans for Future Motor Traffic



Courtesy of Engineering News-Record

MAJOR STREET PLAN OF ST. LOUIS, MISSOURI

More road space for a larger number of vehicles is the common-sense plan which St. Louis is adopting for the relief of traffic congestion. The map above indicates the extent of the widenings, extensions and cut-offs which have been authorized. The city has voted a $67,000,000 bond issue for municipal improvements, of which $8,650,000 will be expended for establishing, opening and widening streets. The present motor vehicle registration of St. Louis is 108,425, and the municipal authorities estimate this will total 200,000 by 1926.

Associations of the Automobile Industry

National Automobile Chamber of Commerce

GENERAL OFFICES: Marlin-Rockwell Building, 366 Madison Avenue, at 46th Street, New York, N. Y.

PRESIDENT: Charles Clifton, Chairman of the Board of Pierce-Arrow Motor Car Company, Buffalo, N. Y.

GENERAL MANAGER: Alfred Reeves.

The National Automobile Chamber of Commerce is the successor of the National Association of Automobile Manufacturers, organized in November, 1900, and of the Automobile Board of Trade.

OBJECTS: To promote the interests of those engaged in automobile manufacture, and to develop the use of motor vehicles as a motor transport unit of maximum public service.

Through its organization, committees and departments the N. A. C. C. works along the following lines:

Diffusion of information as to inventions, patents, state of the art, and conditions of trade in which members are engaged.

Acquiring, holding and disposing of property including patents and rights for the benefit of members but not for the profit of the Chamber.

Securing equitable railroad rates and service.

Opposing unjust legislation, and recommending constructive uniform laws concerning fees, insurance and traffic.

Encouraging the extension of foreign trade, and investigating the possibilities of markets abroad.

Management of two annual automobile shows, one in New York and one in Chicago.

Urging the construction of better highways, adequately maintained, and planned so as to give the greatest economic benefit to the nation.

Recommending a definite and equitable program for motor vehicle taxation.

Furthering standardization in engineering and manufacturing for the ultimate benefit of the public.

Developing improved methods of servicing cars and trucks.

Settling differences between members.

Promoting and enlarging friendly intercourse among men in the industry.

Co-operating with allied associations in the industry for the common good.

Studying the inter-relationship of all means of transportation.

Investigating motor vehicle market conditions.

Developing complete statistics on the production, distribution and use of motor cars and motor trucks, and on the relationship of these to the economics of general business.

Investigating and holding conferences on the best practices in motor car and motor truck advertising.

Campaigning for safer and more efficient regulation of traffic; including the assembling of data on motor fatality causes so as to have a scientific basis for a program of preventive measures.

Membership: Passenger car makers, 74; truck makers, 54. More regarding the Chamber's organization, committees and membership will be found on pages 56-63.

Motor and Accessory Manufacturers Association

GENERAL OFFICES: Fisk Building, 250 West 57th Street, New York.

PRESIDENT: G. Brewer Griffin, Westinghouse Electric & Mfg. Co., Springfield, Mass.

GENERAL MANAGER: M. L. Heminway.

National organization representing interests of automotive parts and equipment manufacturers. Association has automobile show, credit, educational, export, legislation, and traffic departments. Field secretaries have been appointed to keep in direct touch with members.

Rubber Association of America

GENERAL OFFICES: 250 West 57th Street, New York City.

PRESIDENT: W. O. Rutherford.

SECRETARY AND GENERAL MANAGER: A. L. Viles.

A national trade organization embracing rubber manufacturers, importers, brokers and dealers in crude rubber, reclaimers and supply manufacturers of the United States and Canada.

Its membership consists of more than four hundred firms, and its object is to promote in all lawful ways the commercial interests of its members, and secure the advantages to be obtained through mutual co-operation, also to stimulate social intercourse among those connected with the rubber industry and commerce and in

general for the promotion of the welfare of the rubber industry.

Its work is largely carried on through the media of "Divisions" or "Committees" constituted of the members of the Association engaged in a particular branch of the rubber industry.

National Automobile Dealers' Association

GENERAL OFFICES: 320 North Grand Avenue, St. Louis, Mo.

PRESIDENT: John A. Butler, Kansas City, Mo.

SECRETARY AND GENERAL MANAGER: C. A. Vane.

Object is promotion of automobile dealer business, constructive publicity on dealer aims, maintenance of high merchandising standards, research on the magnitude of the business, study of markets and dissemination of facts concerning the same, opposition to harmful legislation, support of good legislation, promotion of good roads.

American Automobile Association

NATIONAL HEADQUARTERS: 1108 Sixteenth Street, Washington, D. C.

NEW YORK OFFICES: 501 Fifth Avenue.

PRESIDENT: Thomas P. Henry, Marquette Building, Detroit, Mich.

TREASURER: W. C. Kirby, 105 West Monroe Street, Chicago, Ill.

SECRETARY: G. Roy Hill, Hotel Raddison, Minneapolis, Minn.

GENERAL MANAGER: Ernest N. Smith, Washington, D. C.

Composed of associations and clubs throughout the country and thousands of individual members. The A. A. A. was organized in Chicago, in March, 1902. Its objects, briefly stated are:

To unite in one body all the automobile clubs and individual motorists in the country.

To secure reasonable and just legislation and to aid in proper enforcement of automobile laws and ordinances.

To obtain local, State and Federal aid in the construction and maintenance of good roads.

To encourage road travel and transportation, and to secure, prepare, and disseminate information relative thereto.

To support sportsmanlike contests and other movements that will advance motoring interests.

To develop service to motorists through clubs.

The A. A. A. is the largest motorists association in the United States and does not operate for personal profit.

Motor Vehicle Conference Committee

OFFICES: Room 1408, Marlin-Rockwell Building, 366 Madison Avenue at 46th Street, New York City.

CHAIRMAN: D. C. Fenner.

SECRETARY: Russell Huffman.

The Motor Vehicle Conference Committee, created the early part of 1920, is composed of representatives from the following organizations: American Automobile Association, Motor and Accessory Manufacturers Association, National Automobile Chamber of Commerce, National Automobile Dealers Association, and the Rubber Association of America.

This Committee acts as a clearing house for the problems, which, in increasing numbers, are confronting the individual members of its component organizations.

Society of Automotive Engineers

GENERAL OFFICES: 29 West 39th St., New York City.

PRESIDENT: H. M. Crane, New York.

SECRETARY AND GENERAL MANAGER: Coker F. Clarkson.

Object of society is to promote the arts, sciences, standards, and engineering practices connected with the design and construction of automobile and other automotive vehicles and apparatus, of all forms of self-propelled or mechanically propelled mediums for the transportation of passengers or freight, and prime-movers. Publications are *Transactions* (semi-annual), *Year Book*, *The Journal* (monthly), and *S. A. E. Handbook*, including *Standards* and *Recommended Practices* (revised semi-annually). Over 200 distinct mechanical and material standards, specifications, mounting dimensions of parts and accessories have been established by S. A. E. Membership over 5,000.

Automotive Equipment Association

GENERAL OFFICES: 1809-1818 City Hall Square Building, Chicago, Ill.

PRESIDENT: W. F. Wissler, Des Moines, Iowa.

EXECUTIVE CHAIRMAN: Wm. M. Webster, Chicago, Ill.

The organization is international in its scope.

OBJECT: To promote and create a friendly and harmonious relation between manufacturers, jobbers, dealers and garage men and all organized effort incident to or connected with the Automotive Industry,

Association of Automobile Industry (Continued)

including automobiles, trucks, tractors, air motors, etc.; to encourage legislation, local, State and National, in the advancement of the automotive interests; for the making of better roads; to collect, collate and disseminate information of interest to the trade generally.

Trailer Mfrs. Ass'n. of America

HEADQUARTERS: 116 West 32nd Street, New York, N. Y.

PRESIDENT: H. C. Fruehauf.

FIRST VICE PRESIDENT: S. E. Liedabrand.

SECOND VICE PRESIDENT: S. B. Winn.

SECRETARY - TREASURER: Henry M. Wood.

MANAGER: Allan P. Ames.

OBJECTS: To promote the trailer industry; encourage introduction and use of trailers and their accessories; further construction and maintenance of good roads; and aid in securing enactment of uniform laws relating to use of trailers.

Active members—firms engaged in the the manufacture of trailers used with motor trucks and tractors and passenger cars.

Associate members—firms engaged in the manufacture of trailer parts.

Automobile Body Builders Ass'n.

GENERAL OFFICES: 1819 Broadway, at 59th Street, New York.

PRESIDENT: Francis D. Willoughby, Willoughby County, Utica, N. Y.

SECRETARY-TREASURER: Frederick D. Mitchell.

A National Association composed of Automobile Body Builders and makers of automobile body materials and parts, and plant tools and supplies.

Its general aims are to bring automobile bodies to the highest degree of service; to improve the economic position of body builders; to improve trade relations between the makers of automobile body materials and parts and automobile body builders.

For specific service the membership is arranged into groups of those making the same or similar products.

Number of Persons Per Motor Vehicle in Each Country

Aden	160	Ecuador	3,230	Netherlands	370
Alaska	8,000	Egypt	1,920	Newfoundland	321
Algeria	593	Esthonia	4,060	New Zealand	27
Angola	10,000	Finland	1,450	Nicaragua	3,190
Arabia	3,000	Fiume	248	Norway	206
Argentina	99	France	93	Palestine	757
Australia	44	French Guiana	400	Panama C. Z.	10
Austria	424	French Indo-China	3,740	Panama Republic	551
Azores	1,210	French Oceania	485	Paraguay	2,180
Bahama Islands	97	French W. Africa	17,600	Persia	10,400
Barbados	139	Germany	453	Peru	1,320
Belgian Kongo	96,600	Gibraltar	108	Philippine Island	700
Belgium	133	Gold Coast	519	Poland	2,638
Bolivia	6,420	Greece	103	Porto Rico	137
Brazil	1,090	Guadeloupe	390	Portugal	620
British E. Africa	5,000	Guatemala	3,880	Portugal E. Africa	8,100
British Guiana	218	Haiti	3,650	Rumania	1,784
British Honduras	458	Hawaii	15	Russia	13,000
British Malaya	179	Honduras	2,650	Salvador	2,860
British Oceania	2,820	Hongkong	9,930	Samoa	222
British S. Africa	61	Hungary	7,230	Siam	4,550
British W. Africa	3,780	Iceland & Faroe Islands	606	Spain	401
Bulgaria	7,400	India	6,490	Sweden	137
Canada	13	Irish Free State	196	Switzerland	168
Canary Island	271	Italy	490	Syria	156
Ceylon	1,050	Jamaica	305	Taiwan	28,100
Chile	470	Japan	7,500	Trinidad	178
China	36,800	Latvia	3,760	Tunis	599
Chosen	16,440	Liberia	375,000	Turkey	15,200
Colombia	2,470	Lithuania	3,080	United Kingdom	74
Costa Rica	1,445	Madagascar	14,200	United States	7
Cuba	109	Madeira Island	922	Uruguay	110
Czechoslovakia	1,490	Malta	453	Venezuela	635
Danzig	322	Martinique	249	Yugoslavia	1,690
Denmark	78	Mauritius	198		
Dom. Republic	453	Mesopotamia	19,000		
Dutch E. Indies	1,426	Mexico	634		
Dutch Guiana	810	Morocco	1,115		
Dutch W. Indies	171				

NOTE.—Registrations of cars and trucks in each country are given on page 33.

Exports 1923

Value of U. S. automotive exports	$189,737,018
Value of Canadian automotive exports	$43,688,448
Rank among all U. S. exports	2nd
Number of motor vehicles exported from U. S.	151,896
Cars	127,035
Trucks	24,861
Number of motor vehicles exported from Canada	69,920
Cars	57,481
Trucks	12,439
Assemblies abroad of American motor vehicles	107,183
Total exports of motor vehicles including assemblies abroad	328,999
Leading motor car foreign market	Australia
Leading motor truck foreign market	Japan
Imports of motor vehicles	853

The annual export of motor vehicles, including assembly of American cars abroad, approximates the total production of one month

U. S. Motor Vehicle Exports for 1923

(Figures, for calendar year, from Bureau of Foreign and Domestic Commerce, U. S. Department of Commerce)

PASSENGER CARS

COUNTRIES	Valued up to $500 Inclusive		Valued Over $500 to $800		Valued Over $800 up to $2,000		Valued Over $2,000	
	Number	Dollars	Number	Dollars	Number	Dollars	Number	Dollars
Austria	37	17,234	29	18,653	13	15,084	2	6,881
Azores, etc. Is	19	6,674	2	1,181	5	5,789	.....	.....
Belgium	3,723	1,275,252	469	275,229	594	686,414	145	418,899
Czechoslovakia	9	1,894	1	550	4	3,786	.....	.....
Denmark	725	328,295	460	306,883	588	609,324	23	78,953
Esthonia	100	28,550	8	5,242	13	16,278	1	3,857
Finland	419	127,993	22	14,565	53	52,665	2	4,716
France	171	75,557	61	41,867	50	66,819	30	129,949
Germany	11	4,900	8	5,047	37	51,694	8	30,013
Gibraltar	18	6,542	7	5,057	8	9,971	.....	.....
Greece	42	19,149	37	37,718	71	74,598	15	37,679
Hungary	4	1,918	.....	.....	9	11,666	1	2,466
Iceland & Faroe Isl	.....	.....	.....	.....	2	2,666	.....	.....
Italy	1,935	541,678	54	29,284	20	29,086	18	54,543
Latvia	69	21,775	3	2,154	16	17,542	2	4,400
Lithuania	.....	.....	.....	.....	8	8,975	1	2,692
Malta, etc, Is	116	43,687	9	5,654	25	27,723	1	2,304
Netherlands	388	167,375	397	265,303	725	765,435	76	220,371
Norway	2,192	720,715	208	139,724	659	672,750	11	27,701
Poland and Danzig	140	40,758	23	15,866	48	55,178	3	7,727
Portugal	93	35,858	29	20,563	134	161,795	11	32,315
Rumania	2	988	14	7,352	50	58,001	15	43,306
Russia in Europe	28	10,961	5	3,415	9	9,973	9	32,036
Spain	2,700	944,597	1,432	918,781	2,022	2,320,171	176	444,734
Sweden	3,837	1,441,153	969	682,286	1,889	1,919,923	49	119,439
Switzerland	143	65,644	46	27,962	271	296,746	35	87,652
Ukraine	4	1,572	.....	.....	3	4,603	2	7,147
England	3,317	1,143,267	1,912	1,258,174	2,034	2,024,323	129	425,343
Scotland	3	1,463	9	6,321	8	12,680	2	6,201
Ireland	56	21,884	94	63,674	11	13,500	7	23,112
Yugoslavia, etc	2	958	2	1,549	1	1,250	1	2,677
Can. Marit. Prov	153	53,044	71	51,055	257	270,642	31	80,527
Quebec and Ontario	515	167,807	3,745	2,360,768	4,246	4,652,324	518	1,411,856
Prairie Prov	378	97,719	144	99,978	353	371,283	24	75,049
Brit. Col. & Yukon	106	29,324	121	87,339	303	345,579	47	117,855
Brit. Honduras	2	454	4	2,519	.....	.....	.....	.....
Costa Rica	15	5,568	26	19,031	23	25,440	2	5,940
Guatemala	18	7,182	47	34,121	85	98,797	3	9,456
Honduras	38	13,797	2	1,062	13	41,962	2	5,356
Nicaragua	4	1,396	6	4,296	8	10,428	.....	.....
Panama	109	42,167	66	42,893	247	298,505	6	14,700
Salvador	9	4,235	34	24,745	66	73,677	10	23,700
Mexico	4,856	1,645,806	1,158	789,390	1,449	1,530,452	96	289,218
Miquelon, etc. Is	1	300	.....	.....	1	1,600	.....	.....
Newfoundland, etc	34	12,117	8	5,976	48	56,411	2	4,900
Barbados	68	25,351	3	2,038	19	18,473	.....	.....
Jamaica	269	104,752	148	105,792	162	171,493	2	5,682
Trinidad & Tob	146	52,899	32	21,657	18	18,389	1	6,500
Other Brit. W. I	116	39,888	13	8,894	35	39,844	2	8,600
Cuba	4,513	1,260,096	568	411,145	689	825,081	233	661,166
Dom. Republic	461	163,158	56	36,351	111	125,845	8	20,058
Turkey in Europe	20	6,704	.....	.....	7	7,488	1	3,275
Dutch W. Ind	58	19,864	4	2,267	11	10,841	1	2,150
Fr. W. Indies	10	3,826	.....	.....	21	18,783	.....	.....
Haiti	50	19,090	65	46,724	65	69,569	4	10,476
Virgin Is	9	3,677	1	741	5	5,710	.....	.....
Argentina	2,253	1,005,907	1,740	1,136,911	2,445	2,567,587	207	594,317
Bolivia	6	2,557	6	4,405	58	69,613	6	15,993
Brazil	283	108,398	513	335,912	1,286	1,300,962	54	152,144
Chile	341	109,026	87	60,933	347	399,801	20	50,686

COUNTRIES	Valued up to $500 Inclusive		Valued Over $500 to $800		Valued Over $800 up to $2,000		Valued Over $2,000	
	Number	Dollars	Number	Dollars	Number	Dollars	Number	Dollars
Colombia	189	66,440	47	30,148	169	196,330	9	23,621
Ecuador	37	13,542	9	6,553	23	28,677	1	2,540
Brit. Guiana	79	28,140	8	5,218	5	8,075	.....	.....
Dutch Guiana	13	5,247	2	1,100	.....	.....	.....	.....
Peru	365	134,296	82	59,610	182	178,207	18	52,560
Uruguay	2,373	697,152	322	197,344	380	437,125	53	166,901
Venezuela	483	185,876	75	50,895	194	208,952	36	97,757
Aden	4	2,000	3	1,650	2	2,065	.....	.....
Brit. India	782	350,490	730	486,471	477	489,894	9	22,398
Ceylon	67	30,357	113	71,499	111	116,595	3	8,260
Straits Setmts	208	98,022	163	103,451	228	230,506	2	4,406
China	215	79,589	281	201,633	305	345,127	16	50,215
Chosen	34	12,414	4	2,650	5	6,122	.....	.....
Java and Madura	187	86,408	388	260,973	665	693,605	5	14,536
Other Dutch E. I.	4	1,200	16	11,179	65	62,423	.....	.....
Far Eastern Rep.	1	463	.....	.....	.....	.....	.....	.....
Fr. Indo-China	19	7,333	17	13,010	5	5,097	1	4,128
Hejaz, Arabia, etc.	99	33,217	1	785	6	5,301	.....	.....
Hongkong	62	26,166	12	7,781	116	123,408	8	24,287
Japan	2,504	795,932	489	320,970	648	718,825	93	268,794
Kwangtung, l. t.	44	16,355	8	4,726	2	3,150	1	2,600
Palestine, etc.	480	141,051	108	77,970	186	220,463	6	14,921
Persia	163	46,444	1	525	1	879	.....	.....
Philippine Islands	578	219,299	319	231,213	514	574,712	32	88,964
Siam	2	784	9	6,681	12	10,528	.....	.....
Turkey in Asia	9	2,927	.....	.....	3	2,573	.....	.....
Australia	6,375	2,564,696	8,835	5,814,281	10,251	10,771,042	356	863,392
Brit. Oceania	.....	.....	18	13,331	2	2,912	.....	.....
Fr., Oceania	8	2,650	5	3,065	1	1,122	.....	.....
New Zealand	679	298,380	1,234	862,920	2,287	2,399,223	69	184,682
Other Oceania	2	900	1	650	1	1,095	.....	.....
Belgian Kongo	44	16,628	2	1,050	.....	.....	.....	.....
Brit. W. Africa	42	17,636	81	54,787	78	77,206	.....	.....
Brit. S. Africa	607	270,956	1,170	835,247	3,054	2,995,165	22	57,672
Brit. E. Africa	106	46,073	19	11,859	88	87,572	.....	.....
Canary Islands	59	26,525	30	19,105	85	92,751	1	2,466
Egypt	120	49,710	52	33,598	44	41,119	3	8,738
Algeria & Tunis	80	26,101	3	1,650	.....	.....	1	3,400
Other Fr. Africa	105	35,627	10	7,393	6	6,072	.....	.....
Morocco	105	39,893	23	16,327	4	3,203	1	2,466
Portu. E. Africa	19	7,910	8	5,914	15	16,085	.....	.....
Other Portu. Africa	35	13,828	17	12,666	12	11,732	.....	.....
Spanish Africa	6	2,922	4	2,872	8	10,462	.....	.....
French Guiana	2	738	.....	.....	.....	.....	.....	.....
Total	**52,539**	**$18,606,717**	**29,697**	**$19,697,747**	**41,998**	**$44,591,387**	**2,801**	**$7,796,421**

GRAND TOTAL—Passenger Cars **127,035** **$90,692,272**

MOTOR TRUCKS

COUNTRIES	Up to 1 Ton		1 to 2½ Tons		Over 2½ Tons	
	No.	Dollars	No.	Dollars	No.	Dollars
Austria	1	$ 531	...	$.....	...	$.....
Azores, etc., Is.	8	3,450	...	.....	...	.....
Belgium	3,955	954,277	4	2,068	...	.....
Czechoslovakia	...	.....	...	.....	...	.....
Denmark	14	7,434	32	34,089	...	.....
Esthonia	82	21,229	1	1,700	...	.....
Finland	353	93,390	1	1,275	...	.....
France	16	11,557	1	1,426	2	4,583
Germany	1	425	...	.....	2	5,000
Gibraltar	4	1,680	...	.....	...	.....
Greece	1	393	...	.....	...	.....
Italy	509	141,167	...	.....	...	.....
Latvia	35	9,289	1	1,750	1	2,325

(*Continued on following page*)

U. S. Motor Vehicle Exports 1923—Motor Trucks—(Continued)

COUNTRIES	Up to 1 Ton No.	Up to 1 Ton Dollars	1 to 2½ Tons No.	1 to 2½ Tons Dollars	Over 2½ Tons No.	Over 2½ Tons Dollars
Malta, Gozo, etc. Is.	11	$ 3,466	...	$.....	...	$.....
Netherlands	32	14,643	3	3,106	...	.....
Norway	548	154,919	30	42,606	8	12,298
Poland and Danzig	2	1,083	...	.....	...	.....
Portugal	9	3,808	...	.....	...	.....
Rumania	....	.....	...	.....	...	.....
Russia in Europe	58	25,585	...	.....	1	4,441
Spain	1,078	253,213	32	30,114	7	7,146
Sweden	1,628	482,517	117	117,791	20	37,692
Switzerland	....	.....	...	.....	...	.....
Ukraine	61	22,723	...	.....	...	.....
England	605	271,219	432	406,550	46	69,863
Scotland	....	.....	...	.....	...	.....
Ireland	1	520	1	795	...	.....
Yugoslavia, etc.	1	1,200	...	.....	...	.....
Can., Marit. Prov.	10	5,435	16	17,701	1	2,633
Quebec and Ontario	225	160,188	712	906,552	135	430,157
Prairie Prov.	37	18,118	64	102,081	8	18,138
Brit. Col. and Yukon	41	32,561	84	140,338	25	71,680
Brit. Honduras	1	687	...	.....	...	.....
Costa Rica	3	1,224	4	6,156	...	.....
Guatemala	6	2,358	3	2,874	...	.....
Honduras	15	6,798	1	1,801	3	14,345
Nicaragua	....	.....	...	.....	...	.....
Panama	66	23,312	9	17,779	2	9,386
Salvador	1	727	...	.....	2	11,513
Greenland	...	.....	...	.....	...	.....
Mexico	780	354,151	178	184,223	55	123,841
Newfoundland, etc.	4	1,750	...	.....	...	....
Barbados	13	4,725	3	5,462	1	500
Jamaica	170	62,795	48	69,529	1	2,705
Trinidad and Tobago	34	12,351	2	3,005	1	3,271
Other Brit. W. Ind.	47	17,425	...	.....	...	.....
Cuba	743	215,467	52	77,344	16	49,368
Dominican Republic	26	11,120	5	7,845	9	26,767
Dutch West Indies	17	5,999	1	100	...	.....
French W. Indies	1	364	...	.....	...	.....
Haiti	8	3,942	13	26,152	2	4,465
Virgin Islands of U. S.	1	500	...	.....	...	.....
Bolivia	2	324	...	.....	...	.....
Brazil	27	7,021	...	.....	...	.....
Chile	515	261,028	44	60,426	8	21,625
Colombia	85	30,522	30	42,107	23	95,815
Ecuador	42	14,808	2	2,487	...	.....
Falkland Islands	1	440	...	.....	...	.....
British Guiana	....	.....	1	1,047	...	.....
French Guiana	3	1,033	...	.....	...	.....
Peru	364	143,071	43	74,320	5	22,528
Uruguay	574	165,261	2	4,711	2	5,275
Venezuela	151	56,403	8	16,302	10	47,726
Aden	....	.....	...	.....	...	.....
British India	72	61,733	97	106,233	20	28,778
Ceylon	23	26,060	39	55,635	1	1,182
Straits Setmts.	....	.....	4	8,653	1	2,665
Other Brit. E. Indies	....	.....	...	.....	...	.....
China	172	63,394	12	12,577	4	27,950
Java and Madura	....	.....	5	5,664	1	3,000
Other Dutch E. Indies	....	.....	5	4,592	...	.....
French Indo-China	9	3,759	...	.....	...	.....
Hejaz, Arabia, etc.	....	.....	...	.....	...	.....
Hongkong	53	24,816	9	13,153	1	110,000
Japan	4,134	1,503,423	641	727,898	336	866,249
Kwangtung, l. t.	32	11,800	6	2,184	...	.....
Palestine and Syria	16	5,696	2	2,156	...	.....
Persia	1	362	...	.....	...	.....
Philippine Islands	325	137,369	20	28,967	1	2,000
Siam	....	.....	...	.....	...	.....
Australia	892	744,560	927	1,224,545	227	442,730
British Oceania	3	967	...	.....	...	.....
French Oceania	4	2,161	1	2,350	2	6,000
New Zealand	148	164,285	233	342,528	65	162,547

U. S. Motor Vehicle Exports 1923—Motor Trucks—(Continued)

COUNTRIES	Up to 1 Ton No.	Up to 1 Ton Dollars	1 to 2½ Tons No.	1 to 2½ Tons Dollars	Over 2½ Tons No.	Over 2½ Tons Dollars
Other Oceania	....	$.....	...	$.....	...	$.....
Belgian Kongo	83	29,592	...	.....	...	.....
Brit. W. Africa	267	229,690	92	96,913	...	.....
Brit. S. Africa	68	59,636	33	43,345	2	5,980
Brit. E. Africa	3	1,852	1	2,000	...	.....
Canary Islands	35	16,822	4	4,711	7	11,367
Egypt	2	924	...	.....	...	.....
Algeria and Tunis	5	1,904	...	.....	...	.....
Other French Africa	30	10,638	1	1,027	...	.....
Liberia	1	450	...	.....	...	.....
Morocco	18	7,344	...	.....	...	.....
Portu. E. Africa	6	3,229	23	30,400	...	.....
Other Portu. Africa	38	14,320	7	2,100	...	.....
Spanish Africa	....	.....	1	1,034	...	.....
Argentina	95	93,765	63	100,926	30	84,144
Total	**19,561**	**$7,325,177**	**4,206**	**$5,233,203**	**1,094**	**$2,759,678**

GRAND TOTAL—Motor Trucks..Number 24,861 Value $15,318,054

Shipments to Non-Contiguous Territories, Calendar Year 1923

(Figures from Bureau of Foreign and Domestic Commerce)

	Alaska Number	Alaska Dollars	Hawaii Number	Hawaii Dollars	Porto Rico Number	Porto Rico Dollars
Passenger Cars	257	$220,059	3,830	$2,743,161	2,141	$1,683,215
Motor Trucks & Busses	36	28,185	560	471,821	372	344,413
Auto. Unit Assemblies	....	3,582	....	263	....	58
Parts and Accessories	....	60,544	....	561,322	....	351,919

Value of Automobile Parts Exported Annually

(Figures from U. S. Bureau of Foreign and Domestic Commerce)

(NOT INCLUDING ENGINES AND TIRES)

1916	$22,536,485	1920	$86,198,013
1917	27,420,913	1921	34,722,154
1918	32,933,006	1922	38,298,032
1919	42,561,676	1923	58,974,907

Engines

1915	$1,393,334	1919	$4,635,763
1916	2,631,414	1920	5,031,856
1917	2,817,921	1921	1,821,120
1918	4,127,257	1922	5,138,754

1923..... 5,342,029

Tires

1916	$17,936,227	1920	$35,082,327
1917	12,330,201	1921	15,958,515
1918	13,977,671	1922	19,898,412
1919	28,924,659	1923	19,409,752

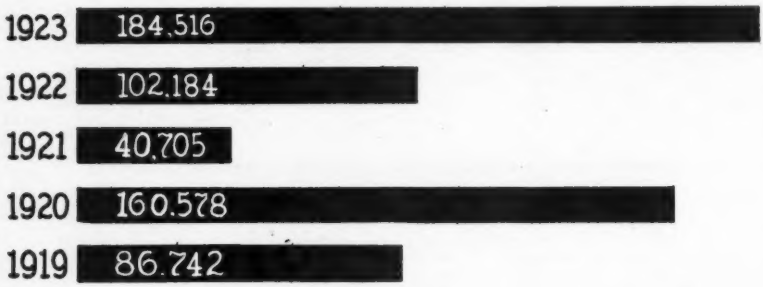
Motor Vehicle Exports by Calendar Years

Motor Vehicle Exports from United States and Canada

(Figures from Bureau of Foreign and Domestic Commerce)

	Car	Trucks	Total		Cars	Trucks	Total
1919..	86,742	18,937	105,679	1921..	40,705	8,901	49,606
1920..	160,578	34,078	194,656	1922..	102,184	14,007	116,191
				1923..	184,516	37,291	221,807

PASSENGER CARS

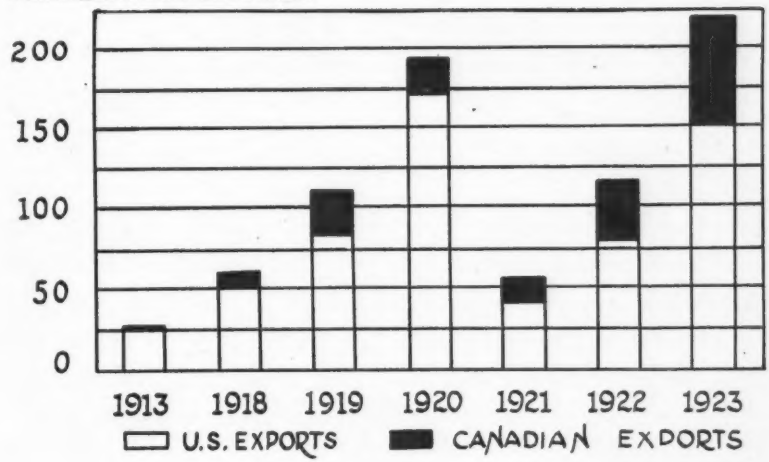


MOTOR TRUCKS

Imports of Automobiles 1911-1923

Year Ended December 31	Passenger Cars and Motor Trucks		Year Ended December 31	Passenger Cars and Motor Trucks	
	No.	Value		No.	Value
1912.....	868	$1,999,587	1918.....	73	$39,733
1913.....	492	1,154,873	1919.....	117	123,025
1914.....	296	493,305	1920.....	926	1,026,518
1915.....	221	327,296	1921.....	522	876,163
1916.....	1,429	770,319	1922.....	483	802,285
1917.....	78	112,440	1923.....	853	884,125

U. S. and Canadian Motor Vehicle Exports



Exports of Passenger Cars, Trucks, and Parts *from the United States* During the Calendar Years 1913, 1918-1923

YEAR	PASSENGER CARS Number	PASSENGER CARS Value	TRUCKS Number	TRUCKS Value	PARTS Value
1913.....	25,880	$25,343,644	1,009	$1,686,807	$6,270,116
1918.....	36,936	36,278,292	10,308	26,814,952	33,607,050
1919.....	67,145	73,700,527	15,585	35,425,437	42,562,186
1920.....	142,508	165,255,921	29,136	46,775,781	86,198,013
1921.....	30,950	32,533,725	7,480	10,335,893	39,058,729
1922.....	66,790	51,049,816	11,443	8,270,908	38,298,032
1923.....	127,035	90,692,272	24,861	15,318,058	58,974,907

Exports of Passenger Cars and Trucks *from Canada* During the Calendar Years 1913, 1918-1923

YEAR	PASSENGER CARS Number	PASSENGER CARS Value	TRUCKS Number	TRUCKS Value	PARTS Value
1913.....	*	$3,395,382	†	†	‡$7,187
1918.....	10,361	5,076,076	†	†	919,738
1919.....	19,597	11,580,260	3,352	$1,673,256	3,490,577
1920.....	18,070	13,576,179	4,942	3,059,056	5,276,027
1921.....	9,755	4,592,664	1,421	718,780	1,128,181
1922.....	35,394	21,059,574	2,564	1,094,519	1,926,098
1923.....	57,481	29,325,031	12,439	4,503,659	3,530,377

*Quantities not shown in 1913.
†Trucks not shown separately; figures included under passenger cars.
‡Parts for 1913 cover April 1 to December 31 only.

Motor Vehicles Rank Second Among Commodity Exports in 1923

CLIMB FROM SIXTH PLACE IN 1922

(Figures from Monthly Summary of Foreign Commerce of U. S.)

1.	Unmanufactured cotton	$807,102,507
2.	**Automobiles and Parts†**	**164,985,237**
3.	Leaf tobacco	152,303,061
4.	Gasoline and naphthas	137,680,748
5.	Lard and substitutes	130,171,943
6.	Wheat	116,490,023
7.	Coal and Coke	116,436,482
8.	Refined copper in ingots, bars, etc	110,489,142
9.	Wheat flour	88,150,902
10.	Illuminating oil	76,553,967

†Does not include engines and tires which bring the total to $189,737,018.

Leading Motor Vehicle Customers of U. S. A., 1923

(Figures from U. S. Bureau of Foreign and Domestic Commerce)

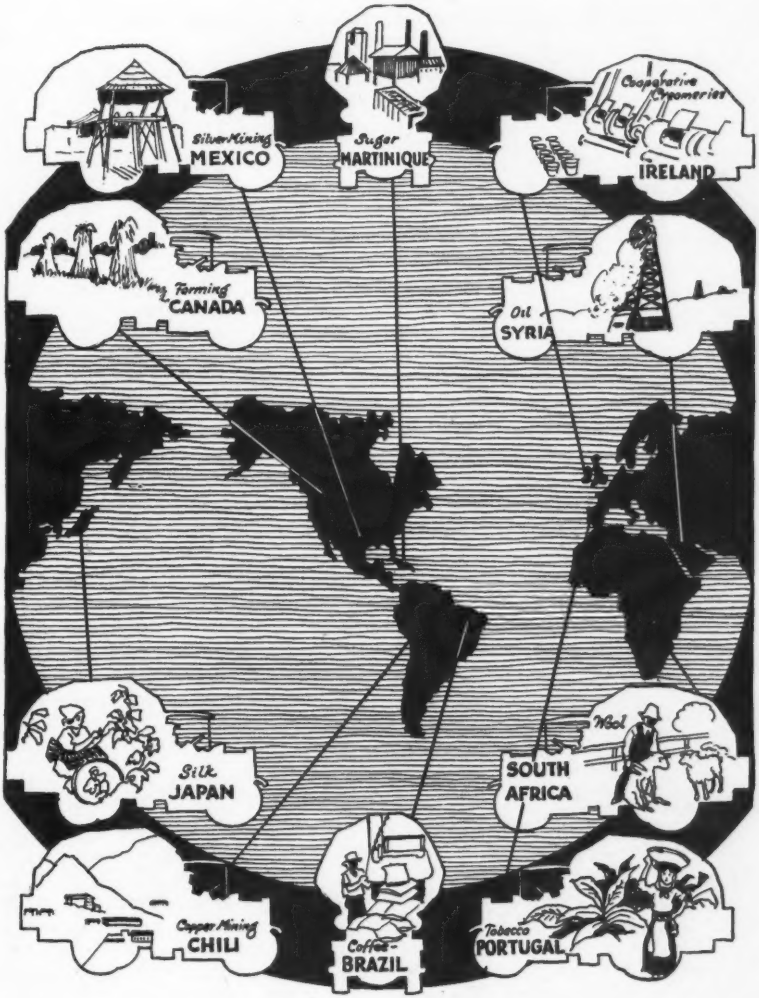
Australia Buys Most Cars

	Number	Value
Australia	25,817	$18,923,471
Canada	11,012	10,272,149
United Kingdom	7,582	4,998,942
Mexico	7,559	4,254,866
Sweden	6,744	4,162,801
Argentina	6,645	5,304,722
Spain	6,330	4,628,283

Japan Largest Truck Purchaser

	Number	Value
Japan	5,111	$3,097,570
Belgium	3,963	969,726
Australia	2,086	2,411,835
Sweden	1,765	638,000
Canada	1,350	1,886,002
Spain	1,117	290,473
Mexico	1,013	662,215

Motor Truck Use Throughout the World



More than a half million motor trucks* exclusive of those in the United States, are transporting goods in all parts of the world. The illustrations above are taken from specific records of trucking operations.

*548,191 truck registrations abroad reported by U. S. Department of Commerce.

43,588 Motor Vehicle Dealers in U. S. A.

90,190 Establishments in Automotive Retail Trade

(Figures Compiled from Chilton Automobile Trade List, as of September 1, 1923)

STATE	Total Dealers	Dealers Handling Both Cars and Trucks	Dealers in Cars Exclusively	Dealers in Trucks Exclusively	Garages	Repair Shops and Service Stations	Supplies	Charging Stations	Number of Establishments
Alabama	332	190	129	13	421	613	701	84	925
Arizona	162	94	59	9	214	278	282	12	352
Arkansas	310	206	94	10	475	549	586	60	734
California	2,099	887	1,052	160	2,382	3,682	2,890	134	5,121
Colorado	595	334	236	25	707	898	903	123	1,147
Connecticut	590	253	295	42	601	842	887	19	1,185
Delaware	110	74	28	8	150	232	219	11	286
District of Columbia	85	20	50	15	61	122	117	4	221
Florida	462	248	181	33	617	829	787	83	1,020
Georgia	508	320	161	27	594	866	856	82	1,156
Idaho	255	169	75	11	290	347	352	23	467
Illinois	2,934	1,391	1,406	137	3,095	4,293	4,408	253	5,796
Indiana	1,571	750	732	89	1,826	2,532	2,451	67	3,566
Iowa	1,931	1,072	790	69	2 298	2,793	2,729	135	3,443
Kansas	1,282	673	538	71	1,501	1,956	2,056	284	2,508
Kentucky	633	319	283	31	612	763	772	80	1,099
Louisiana	275	169	81	25	392	528	520	28	674
Maine	532	222	291	19	482	569	581	35	844
Maryland	489	270	173	46	557	757	747	97	1,004
Massachusetts	1,358	589	697	72	1,504	2,171	2,027	128	3,134
Michigan	1,737	855	832	50	2,072	2,575	2,751	144	3.587
Minnesota	1,656	922	644	90	1,715	2,149	1,983	119	2,725
Mississippi	258	162	86	10	287	388	408	37	509
Missouri	1,302	700	537	65	1,700	2,251	2,169	155	2,873
Montana	396	241	132	23	451	515	532	30	686
Nebraska	1,167	773	351	43	1,330	1,555	1,513	56	1,911
Nevada	85	44	40	1	91	130	115	13	158
New Hampshire	334	149	179	6	397	520	363	13	619
New Jersey	997	440	481	76	1,265	1,775	1,653	53	2,395
New Mexico	138	83	51	4	197	265	224	6	304
New York	3,101	1,440	1,457	204	4,676	5,264	5,374	314	7,639
North Carolina	564	325	207	32	577	834	793	52	1,047
North Dakota	537	332	170	35	526	683	638	33	883
Ohio	2,571	1,298	1,129	144	3,052	4,189	4,546	349	5,508
Oklahoma	794	438	315	41	819	1,264	1,196	53	1,668
Oregon	447	185	241	21	559	857	574	20	1,081
Pennsylvania	3,376	1,614	1,562	200	4,188	5,330	5,471	243	6,938
Rhode Island	181	71	98	12	177	279	246	8	406
South Carolina	320	180	127	13	274	465	439	28	600
South Dakota	649	428	191	30	659	788	796	49	996
Tennessee	479	274	171	34	412	646	610	71	908
Texas	1,610	734	805	71	1,973	3,193	2,882	125	4,138
Utah	176	109	56	11	200	470	278	29	368
Vermont	321	159	160	2	282	355	357	56	465
Virginia	579	342	204	33	694	808	796	57	1,045
Washington	680	366	274	40	803	1,278	915	31	1,654
West Virginia	494	271	203	20	455	563	583	48	760
Wisconsin	1,993	1,227	640	126	2,157	2,623	2,737	256	3,388
Wyoming	168	94	65	9	148	170	175	12	229
Total U. S.	**43,588**	**22,506**	**18,759**	**2,323**	**50,915**	**67,802**	**65,988**	**4,202**	**90,190**

Evidences of Dealer Prosperity in 1923

Right—Bars show increase in average number of motor vehicles in U. S. per dealer. Each motor car and truck is a customer for fuel, tires, and supplies.

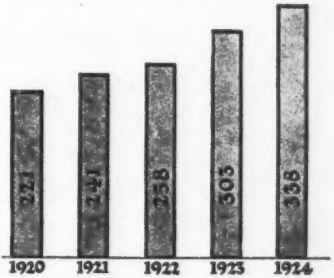


Chart and figures from Automotive Industries

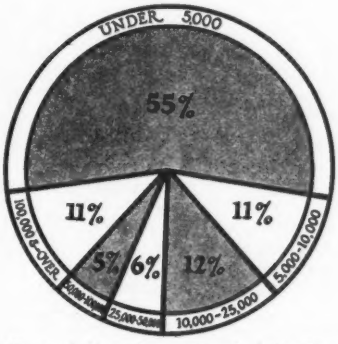


Chart and figures from Automotive Industries

Left—Circle depicts percentage of motor vehicle dealers according to population of communities. Note that the majority are in towns under 5,000.

Right — Circle shows percentage of total sales of automotive products in 1923. Note that the volume of fuel, tires, accessories and parts sales is equivalent to the sales of new cars and trucks.

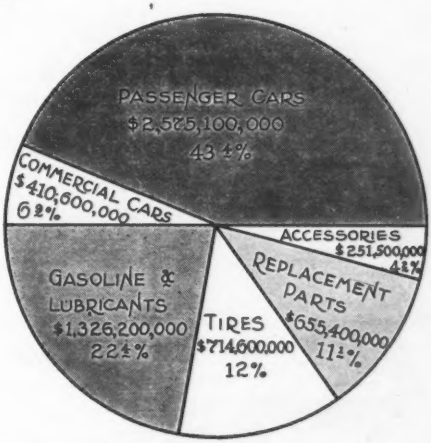


Chart and figures from Automobile Trade Journal

8,975,300 Motorists at National Forests in 1923

More Than 2½ Times the Number in 1922

SHOWN BY STATES IN WHICH NATIONAL FORESTS ARE LOCATED

(Figures from U. S. Forest Service)

State	Total Number of Visitors	Motorists	State	Total Number of Visitors	Motorists
Alabama	1,100	300	North Caroina	98,400	91,000
Arkansas	35,000	28,000	Oklahoma	63,500	62,000
Arizona	321,200	312,400	Oregon	645,600	494,000
California	4,336,700	3,797,600	Pennsylvania	1,000	500
Colorado	1,580,500	1,119,400	South Dakota	138,200	117,600
Florida	38,100	33,400	Tennessee	31,000	27,000
Idaho	253,300	240,800	Utah	187,800	169,500
Michigan	47,200	43,000	Virginia	38,300	32,000
Minnesota	150,700	144,000	Washington	930,700	737,800
Montana	471,100	398,000	West Virginia	6,000	5,000
Nebraska	6,900	6,400	Wyoming	147,600	108,600
Nevada	71,900	67,600			
New Hampshire	775,600	754,600	**Total**	**10,570,700**	**8,975,300**
New Mexico	193,300	184,800			

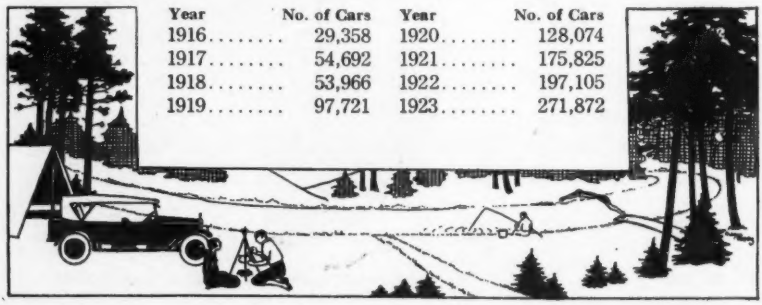
NOTE BY U. S. FOREST SERVICE—Human carelessness is the cause of 80 per cent of all forest fires. The motoring public cannot afford to be careless with fire while in wooded areas. Don't burn your playgrounds!

37% More Cars Visit National Parks in 1923

Total visitors in National Parks 1923 1,280,886
Total motorists visiting National Parks 1923 (est) 936,623

(Figures from Report of Director of National Park Service)

Year	No. of Cars	Year	No. of Cars
1916	29,358	1920	128,074
1917	54,692	1921	175,825
1918	53,966	1922	197,105
1919	97,721	1923	271,872



$471,548,000

Motor Vehicle Taxes in 1923

(Federal and State figures from U. S. Bureau of Public Roads, Municipal figures compiled by National Automobile Chamber of Commerce from reports by City Treasurers.)

FEDERAL

1. Passenger Car	$106,280,234.24	
2. Commercial Vehicle	10,908,777.31	
3. Parts, Tires and Accessories	38,610,844.42	$155,799,855.97
4. Vehicles for Hire		1,907,399.55
		$157,707,255.52

STATE

1. Registration Fees, Including Driver's Licenses	$188,947,862.97	
2. Gasoline Taxes	36,813,939.61	
3. Personal Property Taxes	75,000,000.00	
		$300,761,802.58

MUNICIPAL

Municipal Taxes on the Motor Vehicle	**$13,079,209.57***

*This figure does not include property taxes on the garage or local taxes levied on the retail business.

$13,000,000 in Municipal Taxes

Total Compiled from City Treasurer Reports in 900 Cities Out of 1497 Having Over 5,000 Population. Does not Include Taxes on Garages or on Local Retail Business.

No. Cities in State	STATES	No. Cities Rep't M. V. Tax	No. Cities Rep't no M. V. Tax	Total No. of Cities Rep't	No. of Cities not Rep't	Motor Cars	Motor Trucks
16	Alabama	..	7	7	9	.....	.....
8	Arizona	..	5	5	3	.....	.....
13	Arkansas	5	..	5	8	$24,670.00	$170.00
51	California	10	6	16	35	2,192.00	2,565.00
11	Colorado	1	10	11	..	.....	.....
42	Connecticut	15	2	17	25	.....	.....
1	Delaware	..	..	..	1	.....	.....
1	Dist. of Columbia	1	..	1	..	.....	.....
17	Florida	3	6	9	8	.....	.....
26	Georgia	2	11	13	13	.....	300.00
9	Idaho	2	6	8	1	.....	.....
89	Illinois	31	16	47	42	152,321.75	31,280.00
54	Indiana	14	23	37	17	.....	6,742.12
35	Iowa	3	26	29	6	.....	.....
29	Kansas	4	13	17	12	.....	497.60
21	Kentucky	9	3	12	9	122,036.60	920.00
14	Louisiana	1	2	3	11	.....	.....
23	Maine	13	..	13	10	28,336.00	4,027.44
8	Maryland	2	..	2	6	.....	.....
113	Massachusetts	45	10	55	58	375,005.86	73,571.10
59	Michigan	6	51	57	2	.....	1,000.00
27	Minnesota	2	16	18	9	.....	662.00
17	Mississippi	3	2	5	12	688.72	.....
30	Missouri	12	..	12	18	25,486.75	928.00
12	Montana	2	4	6	6	.....	42.00
15	Nebraska	2	7	9	6	.....	.....
1	Nevada	..	..	..	1	.....	.....
14	New Hampshire	9	..	9	5	.....	.....
74	New Jersey	22	8	30	44	55,153.25	20,811.12
4	New Mexico	1	1	2	2	.....	.....
88	New York	11	65	76	12	.....	100.00
28	North Carolina	9	2	11	17	5,601.00	100.00
6	North Dakota	1	4	5	1	.....	.....
94	Ohio	8	46	54	40	.....	.....
27	Oklahoma	2	16	18	9	.....	.....
12	Oregon	2	7	9	3	.....	.....
174	Pennsylvania	11	119	130	44	.....	2,579.00
19	Rhode Island	5	2	7	12	4,726.00	9,400.00
14	South Carolina	2	5	7	7	.....	.....
8	South Dakota	1	6	7	1	.....	.....
14	Tennessee	5	5	10	4	114,500.00	22,332.50
60	Texas	17	16	33	27	.....	540.00
5	Utah	2	2	4	1	.....	.....
14	Vermont	3	10	13	1	.....	.....
21	Virginia	11	..	11	10	107,267.41	37,871.83
17	Washington	7	7	14	3	.....	71.00
15	West Virginia	2	8	10	5	.....	.....
42	Wisconsin	21	2	23	19	225,350.08	2,069.00
5	Wyoming	..	3	3	2	.....	.....
1497	Total	340	560	900	597	$1,243,335.42	$218,579.71

Paid by Motor Vehicles in 1923

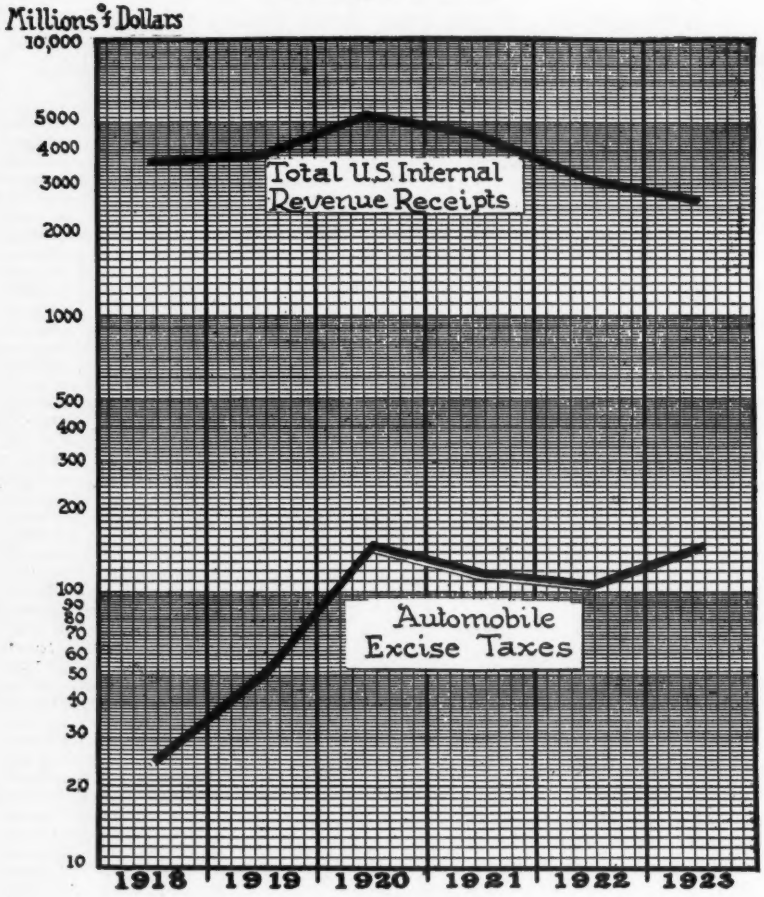
First Compilation Ever Made of City Motor Vehicle Taxes. Figures are Reported from Most of Larger Cities, but Total is Probably 10% Higher Than Actual Figures Given Here

Buses	Taxicabs	Other Common Carriers	Personal Property	Miscellaneous or not Classified	Total	STATES
.....	.....	.....	.....	.....	.....	.....Alabama
.....	.....	.....	.....	.....	.....	.....Arizona
$1,800.00	$96.00	.....	.....	$55,000.00	$81,736.00	.....Arkansas
381.44	827.00	$341.80	$180,735.24	.....	187,042.48	.....California
.....	.....	.....	.....	204,523.31	204,523.31	.....Colorado
.....	.....	.....	130,576.60	169,860.84	300,437.44	.....Connecticut
.....	.....	.....	.....	.....	.....	.....Delaware
.....	.....	.....	375,000.00	401,711.00	776,711.00	Dist. of Columbia
50.00	1,000.00	.....	4,200.00	.....	5,250.00	..... Florida
100.00	150.00	120.00	5,715.05	.....	6,385.05	.....Georgia
830.50	500.00	.....	.....	.....	1,330.50	.....Idaho
568.00	2,295.75	653.00	4,000.00	3,102,400.89	3,293,519.39	.....Illinois
1,715.00	7,859.40	.....	.....	1,939.00	18,255.52	.....Indiana
.....	290.00	.....	.....	.....	290.00	.....Iowa
.....	882.50	.....	.....	.....	1,380.10	.....Kansas
168.00	390.00	334.00	374,950.00	72,052.49	570,851.09	.....Kentucky
.....	.....	.....	.....	.....	.....	.....Louisiana
41.25	7.42	.....	52,827.15	60,439.80	145,679.06	.....Maine
.....	.....	.....	.....	881,697.78	881,697.78	.....Maryland
85.20	1,242.80	568.00	754,167.69	1,164,100.91	2,368,741.56	....Massachusetts
1,331.00	15,320.00	.....	.....	.....	17,651.00	.....Michigan
2,872.88	3,434.50	.....	.....	.....	6,969.38	.....Minnesota
.....	.....	.....	14,817.00	.....	15,505.72	.....Mississippi
.....	375.00	.....	.....	721,935.85	748,725.60	.....Missouri
.....	712.00	360.00	.....	.....	1,114.00	.....Montana
.....	165.00	.....	.....	.....	165.00	.....Nebraska
.....	.....	.....	.....	.....	.....	.....Nevada
.....	.....	.....	.....	313,856.74	313,856.74	..New Hampshire
8,725.02	1,667.96	9,651.78	48,353.72	701,762.37	846,125.22	.....New Jersey
.....	.....	.....	.....	.....	.....	.....New Mexico
2,067.72	134,615.90*	.....	.....	.....	136,783.62	.....New York
1,090.00	1,680.00	6,850.00	6,888.00	11,600.00	33,809.00	...North Carolina
.....	.....	.....	.....	945.00	945.00	....North Dakota
6,174.50	4,410.00	.....	1,430.55	321,000.00	333,015.05	.....Ohio
.....	2,443.38	90.00	.....	.....	2,533.38	.....Oklahoma
.....	125.00	375.00	.....	.....	500.00	.....Oregon
1,400.00	1,665.25	2,945.00	.....	1,100.00	9,689.25	.....Pennsylvania
120.00	1,000.00	400.00	.....	.....	15,646.00	.....Rhode Island
50.00	375.00	100.00	.....	17,326.99	17,851.99	...South Carolina
30.00	135.00	.....	.....	.....	165.00	....South Dakota
3,717.50	310.00	.....	.....	5,263.00	146,123.00	.....Tennessee
525.00	3,621.00	6,452.25	242,868.00	126,473.81	380,480.06	.....Texas
.....	.....	77.50	127,500.00	.....	127,577.50	.....Utah
170.00	50.00	.....	.....	.....	220.00	.....Vermont
7,938.75	8,203.29	296.00	134,303.92	60,265.14	356,146.34	.....Virginia
398.50	1,397.00	5,271.00	.....	477.00	7,614.50	.....Washington
.....	.....	.....	24,704.53	.....	24,704.53	....West Virginia
549.00	1,650.00	1,754.95	178,410.01	281,679.37	691,462.41	.....Wisconsin
.....	.....	.....	.....	.....	.....	.....Wyoming
$42,899.26	**$198,896.15**	**$36,640.28**	**$2,661,447.46**	**$8,677,411.29**	**$13,079,209.57**	.....Total

*$131,548.00 included herein is amount of taxicab license fees for the five boroughs of New York City for the year 1923. This is the only New York City figure used.

Automobile Excise Tax Trend Increasing

While United States Internal Revenue Receipts Decline—Excise Taxes Increasing—Now 5.9% of Total



Although the total receipts of the Federal Government have been steadily declining, the amount of special war-time excise taxes exacted from automotive products has been increasing, so that the percentage of the special burden levied on these articles today is eight times as great as in 1918. See table of taxes by fiscal years on opposite page.

Federal Motor Vehicle Excise Taxes

By Calendar Years

(Source—Internal Revenue Bureau, U. S. Treasury Department)

Calendar Year	Automobile Trucks and Wagons	Other Automobiles and Motorcycles	Tires, Parts and Accessories	Total
1919.....	$8,765,122.57	$52,860,310.36	$30,735.394.75	$101,138,190.65
1920.....	15,134,594.14	83,128,363.17	50,944,562.32	149,207,519.63
1921.....	8,245,404.22	51,237,358.20	40,484,660.39	99,967,422.81
1922.....	9,583,211.67	69,856,599.44	35,353,589.09	114,793,400.20
1923.....	10,908,777.31	106,280,234.24	38,610,844.42	155,799,855.97*

*Does not include $1,907,399.55 Federal Tax on motor vehicles for hire.

Federal Motor Vehicle Taxes Compared to Total Receipts

(Fiscal Year Figures; from Internal Revenue Bureau)

Fiscal Year	Total U. S. Internal Revenue Receipts	Excise Taxes on Motor Vehicles	%Total Receipts Paid by Auto Excise Taxes
1918.....	$3,696,043,485	$23,981,268 (9 Months)	.65%
1919.....	3,840,230,995	48,834,271	1.27%
1920.....	5,399,149,245	143,922,792	2.66%
1921.....	4,579,973,609	115,546,249	2.52%
1922.....	$3,197,451,083	$104,433,762	3.26%
1923..... Last Six Months	2,621,745,227	144,293,402	5.5%
1923.....	1,342,571,666	79,174,810	5.9%

Heavy Taxes on Taxicabs

Here are some of the federal, state, and local levies which motor cabs for hire must pay in many communities:

1. Federal Excise on Vehicle.
2. Federal Excise on Tires and Parts.
3. Federal on Cars for Hire.
4. State License Fee on Cars for Hire.
5. State Owner's Tax.
6. State Operator for Hire Tax.
7. State Car for Hire Fee.
8. State Personal Property Tax.
9. State Gasoline Tax.
10. Municipal Wheel Tax.
11. Municipal Common Carrier Tax.
12. Local Tax on Place of Business.
13. Franchise Tax.
14. Also the general taxes, federal and state, on corporations, incomes, etc.

Taxes Paid by Typical New Cars in Baltimore, Maryland

$380 TOURING MODEL

Federal excise on purchase	$14.25
State horsepower	7.20
State gasoline	7.00
State operator's (not for hire)	2.00
State personal property	.77
State certificate of title	1.00
City personal property	7.30
	$40.52

Also 5% on value of any additional repair parts, accessories and tires.

$895 TOURING MODEL

Federal excise on purchase	$33.00
State horsepower	7.68
State gasoline est. (400 gal. at 2c)	8.00
State operator's (not for hire)	2.00
State personal property	$ 1.84
State certificate of title	1.00
City property	17.40
	$70.92

Also 5% on value of any repair parts, accessories and tires.

$1565 TOURING MODEL

Federal excise on purchase	$58.69
State horsepower	8.74
State gasoline est. (500 gal. at 2c)	10.00
State operator's (not for hire)	2.00
State personal property	3.37
State certificate of title	1.00
City personal property	31.90
	$115.70

Also 5% on value of any repair parts, accessories and tires.

In addition, trucks, buses, and taxicabs bear five other taxes.

Farm Motor Vehicle Registration 4,500,000

Motor vehicles on farms:

Motor cars	4,100,000
Motor trucks	400,000
Total vehicles	4,500,000

American Farm Bureau Federation Against Tax on Farmers' Equipment

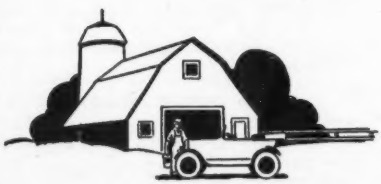
The tax on parts is largely in the nature of a tax on misfortune and cannot well be justified at any time. In so far as the farmer is concerned the light trucks are his horse and wagon in these days of mechanical equipment and they should be freed, certainly in part if not in whole, from this tax.—(*American Farm Bureau Federation.*)

National Grange Opposed to Federal Excise Taxes on Motor Vehicles

The automobile and the motor truck have become so necessary to agriculture, and to reasonably agreeable life in the country, that the best figures now indicate that one-third of the automobiles in use are owned by farmers, while the light truck is becoming indispensable to agriculture.

The tax provided for in the present law on repair parts seems to be unreasonable. It is a recurring tax and every automobile user should be relieved of it. The tax on trucks is a tax on necessary equipment, and should share in any plan of reduction, in a bill when other excise taxes are being generally removed or reduced. Neither does there seem to be any tenable reason why the manufacturers sales taxes on automobiles should not have the benefit of reasonable reductions.

—(*National Grange*)



$45,864,200.00
Farmers' Federal Motor Tax Bill in 1923

COST OF NEW MOTOR VEHICLES		Wholesale Value
New cars produced in 1923	3,644,000	$2,243,385,000
Assuming same percentage continued to go on farms that is indicated by ratio of farm registration to total registration	30.94%	30.94%
New cars to farms in 1923	1,118,453	$694,102,000

Federal Excise Tax, at 5% on $694,102,000 ..... $34,705,100

		Wholesale Value
New trucks produced in 1923	370,000	$267,500,000
Assuming same percentage continuing to go to farms	23.4%	23.4%
	86,580	$62,595,000

Federal Excise Tax on $62,595,000 ..... $1,877,850

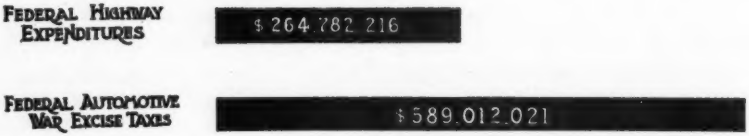
TIRE COSTS IN 1923		
Average cash outlay for tires per year as indicated by above survey	$34	
Multiplying total vehicles on farms by this amount, gives total tire replacement	$153,000,000	
Element in cost for freight, profit, rent, bookkeeping and other sales costs	38,250,000	
Wholesale value equals	114,750,000	
Federal excise tax at 5% on $114,750,000		**$5,737,500**

REPAIRS COSTS†		
Indicated average cash outlay for repairs	$28	
(Assuming that three-quarters is for parts)	$21	
Which is believed conservative in view of large amount of repair labor done on farm, total farm expenditure for repair parts	$94,500,000	
Element in cost for freight, profit, rent, bookkeeping and other sales costs	23,625,000	
Wholesale value equals	70,875,000	
Federal excise tax at 5% on $70,875,000		**$3,543,750**

†(Repair, tires and parts, figures based on a survey of the farmers' use of automobiles made by Division of Farm Management, Bureau of Agricultural Economics, Department of Agriculture. Report appeared as supplement to Monthly Crop Report, January 1924, Page 3.)

Total Federal Automotive Excise Taxes Paid by Farmers $45,864,200

Federal Highway Expenditures 45% of Federal Motor Vehicle Taxes 1917-1923



Excise taxes on motor vehicles and parts collected to June 30, 1923, totaled $589,012,021. During the same period expenditures for Federal and Forest Road Aid, including administrative expenses, amounted to but $264,782,216, or the equivalent of 45% of the sum collected by the Federal Government from motor vehicle users.—*Henry C. Wallace, Secretary of Agriculture in Address before Investment Bankers Association, Washington, D. C., October 29, 1923.*

Amount and Use of Motor Revenues, 1923

Total state registrations and licenses	$188,947,862.97*
Applicable to highway work under State Highway Departments	153,203,506.89
Per cent available for highway work	**81%**
State Gasoline Taxes	36,813,939.61
Applicable to highway work	21,528,559.88
Per cent available for highway work	**58%**
Total Federal Excise tax collections, calendar year 1923	$155,799,855.97†
Federal Aid payments to states	74,883,782.70
Ratio Federal Aid payments to Federal Excise Collections in 1923	**48%**

*Does not include $75,000,000 in personal property taxes on motor vehicles.
†Not including $1,907,399.55 Federal tax on motor vehicles for hire.

289,000 Children Ride to School in Motor Buses

13,037 Consolidated Rural Schools in the United States—1,393 Established in 1923

(Thousands of rural communities now have educational advantages equal to the best that the city affords, through consolidation of one-room school houses into central buildings. The following figures are totals reported by State Superintendents of Education to the National Automobile Chamber of Commerce, except where the state is marked (c). In this case the total of replies received from county superintendents is recorded. As only about 50% of the counties reported in any state these figures are less than the actual total.)

STATE	No. Consolidated Schools in State	No. Consolidations effected in 1923	Total No. of Children Transported to schools at public expense	No. of Children Transported by Motor Vehicles
Ala.(c)..	172	34	9,482	8,108
Ariz.....	30	4	1,000	900
Ark.....	200	25	2,000	1,000
Cal.....	330	12	8,530	8,530
Colo.(c).	105	2	5,285	10,901
Conn.(c)	15	9	785	655
Del.(c)..	11	3	2,500	2,000
Fla.....	105	48	5,445	5,205
Ga.....	510	212*	22,676	12,165
Ida.(c)..	11	6**	3,141	1,165
Ill.(c)...	124**	8**	1,322	1,587
Ind.....1,024		101	91,535	50,000
Ia.(c)...	254	9	27,607	11,790
Kans....	163	7(71)†	5,211	4,260
Ky.(c)..	333**	75**	3,205	1,906
La.(c)...	118	11	2,080	2,545
Me.....	519	..	12,000	.....
Md.(c)..	39	12	4,334**	3,900**
Mass....2,229		..	28,000	6,000
Mich....	44	6	4,307	.....
Minn....	335	20	28,000	8,000
Miss....	751	100	44,034	12,300 (26)†
Mo.(c)..	135	16	1,150	1,280
Mont.(c)	45	6	1,294	1,321
Nebr....	105	2	3,500	2,625
N. J....	177	7	31,766	24,000
N. H....	30	5	3,000	2,000
Nev.....	9	2	500	450
N. M.(c)	3	..	282	175
N. Y....	425	33	.....	.....
N. C.(c).	237	84	25,045	23,413
N. D. (c)	370	20	15,537	3,909
Ohio(c)..	573	63	61,722	20,027
Okla.(c).	124	9	12,107	11,486
Ore.(c)..	88	26	1,610	2,214
Penna...	420	112	16,932	5,596 (38)†
R. I.....	4	1	....	.....
S. C.....	250	14	2,500	2,000
S. D....	172	3(38)†	5,401	3,000
Tenn. (c)	298	68	6,292	4,703
Tex.(c)..	354	77	2,881	2,848
Utah....	80	3	3,638	1,559
Va.(c)...	394	83	13,051	10,176
Wash.(c)	151	13	9,825	9,605
W.Va.(c)	73	19	880	655
Wis.(c)..	51	3	2,419	756
Wyo....	60	20	3,429	2,500
Canal Zn	..	..	.....	200
Total..	**13,037**	**1,393**	**504,933**	**289,415**

(c)Totals of reports from County Superintendents. *1922 latest figures available. **State figures.
†Total given here is the sum of the reports received from the counties on this item, as no state figure is available. Figure in parentheses indicates the number of counties reporting.
No figures available for Vermont.

Drawn from photograph of Center Consolidated School, Saguache Co., Colo.

35 Cities Reduce Motor Fatalities

City	Total No. Motor Fatalities 1922	Total No. Motor Fatalities 1923	City	Total No. Motor Fatalities 1922	Total No. Motor Fatalities 1923
Berkeley, Cal.	13	5	Newburgh, N. Y.	3	2
Bridgeport, Conn.	27	24	*New Britain, Conn.	7	4
Chicago, Ill.	626	583	New Haven, Conn.	34	30
Dayton, Ohio.	29	23	Newport News, Va.	1	0
Denver, Colo.	58	41	Norfolk, Va.	11	5
Elizabeth, N. J.	12	9	*Oak Park, Ill.	14	12
Galveston, Texas.	6	5	*Quincy, Ill.	2	1
Haverhill, Mass.	9	6	Reno, Nev.	4	1
Houston, Tex.	19	15	Rochester, N. Y.	52	47
Indianapolis, Ind.	54	47	San Antonio, Tex.	28	18
Jackson, Mich.	9	7	San Diego, Cal.	31	18
Kalamazoo, Mich.	11	9	San Francisco, Cal.	115	101
Knoxville, Tenn.	21	15	Sheboygan, Wis.	3	2
Lewiston, Me.	2	1	Steubenville, Ohio.	10	6
Madison, Wis.	10	6	Topeka, Kans.	12	7
Minneapolis, Minn.	71	61	Waco, Texas.	4	3
New Bedford, Mass.	19	8	Worcester, Mass.	26	12
			Yonkers, N. Y.	13	5

*Also on 1922 Honor Roll.

Figures are compiled from Health Department records by the National Bureau of Casualty and Surety Underwriters.

Motor Fatality Rate Declines Though Total Mounts

(The two encouraging factors in the highway safety outlook are: 1. that some cities are lowering their motor fatalities as noted above; 2. that the rate in the country as a whole, in proportion to the number of vehicles registered, is declining. The mounting total is a call to strenuous action, and the declining rate shows that control is improving.)

Year	Number Motor Fatalities per Motor Vehicle	Total Number Motor Vehicle Deaths	Registration of Motor Vehicles
1917.	.0019	9,184	5,104,321
1918.	.0016	9,672	6,146,617
1919.	.0013	9,827	7,565,446
1920.	.00123	11,358	9,231,941
1921.	.00119	12,500	10,463,295
1922.	.00114	14,000	12,238,275
1923.	.00106	16,000	15,092,177

Six Traffic Safety Suggestions

(The following recommendations by the Traffic Planning and Safety Committee of the National Automobile Chamber of Commerce are based on analysis of records of causes of traffic fatalities. They are offered not as the complete solution of the problem, but as methods suggested by the practical experience of cities working for safer traffic.)

1. *Deprive the Careless Motorist of His Automobile.*—Where it has been definitely proved in court, under due process of law, with evidence submitted, that reckless driving caused an accident, the courts should have power in addition to all present penalties to take the automobile away from the owner and impound it. In such cases the length of time the owner is deprived of his car should be determined by the seriousness of the accident he caused.*

* * *

2. *Instruction in Wet Weather Driving.*—Let every motor club bring this subject before the attention of its members. Let state examinations of drivers inquire into the capability of applicants in this respect. Evidently there is dangerous ignorance in this regard.

* * *

3. *Appoint Traffic Administrators.*—Centralized responsible control of traffic is needed in city and state, so that efficiency may be promptly secured, and future needs provided for.

* * *

4. *Better Guardianship of Children.*—Washington, D. C., cut its child fatalities in half by safety education in the schools. It cannot be expected that children will remember to cross at the crossings unless they are thoroughly drilled in this habit. Adequate playgrounds must be provided.

* * *

5. *Adjust Headlights Properly.*—Part of the hazard of wet weather driving is not only skidding, but the glare on wet windshields from improperly adjusted lights on approaching vehicles.†

* * *

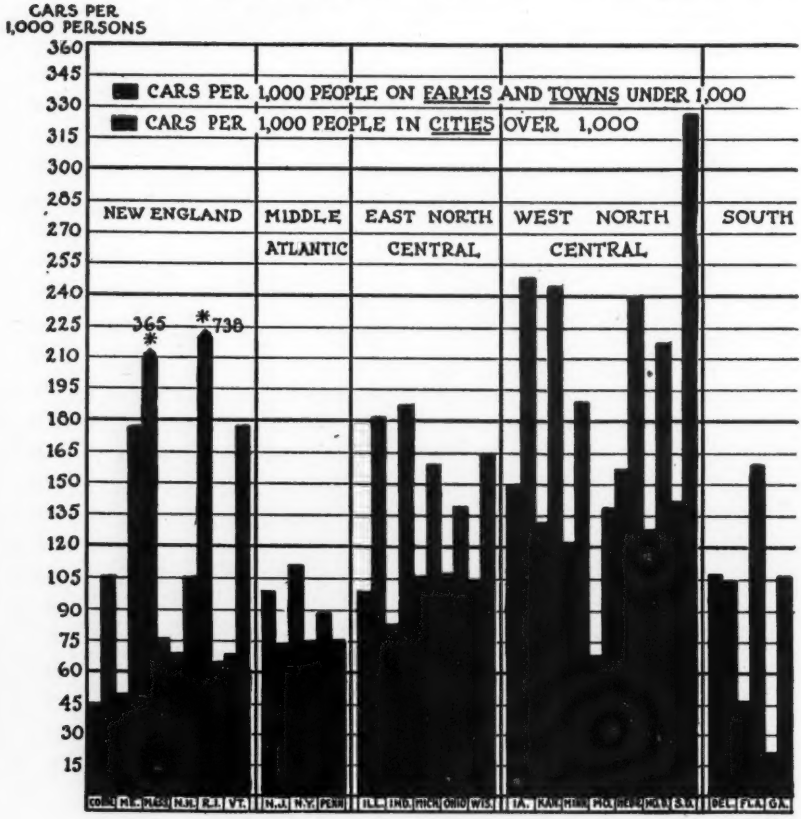
6. *Keep Records of Fatality Causes.*—Causes that are dominant in one city may be less striking in others. Each community needs to have scientific knowledge of its own situation.

*Specimen law on impounding of motor vehicles may be obtained without charge from National Automobile Chamber of Commerce, 366 Madison Avenue, New York.

†Instruction on headlight adjustment may be obtained from American Automobile Association, 1108 16th Street N. W., Washington, D. C., or from clubs affiliated with the A. A. A.

Farm Market for Motor Cars Less

70 cars per 1,000 persons on *farms* as against 14.3 persons per car on *farms* as compared with



*Rhode Island and Massachusetts not comparable with the other states because the population includes towns under 1,000. City population comprises cities over 1,000. based on the 1920 census.

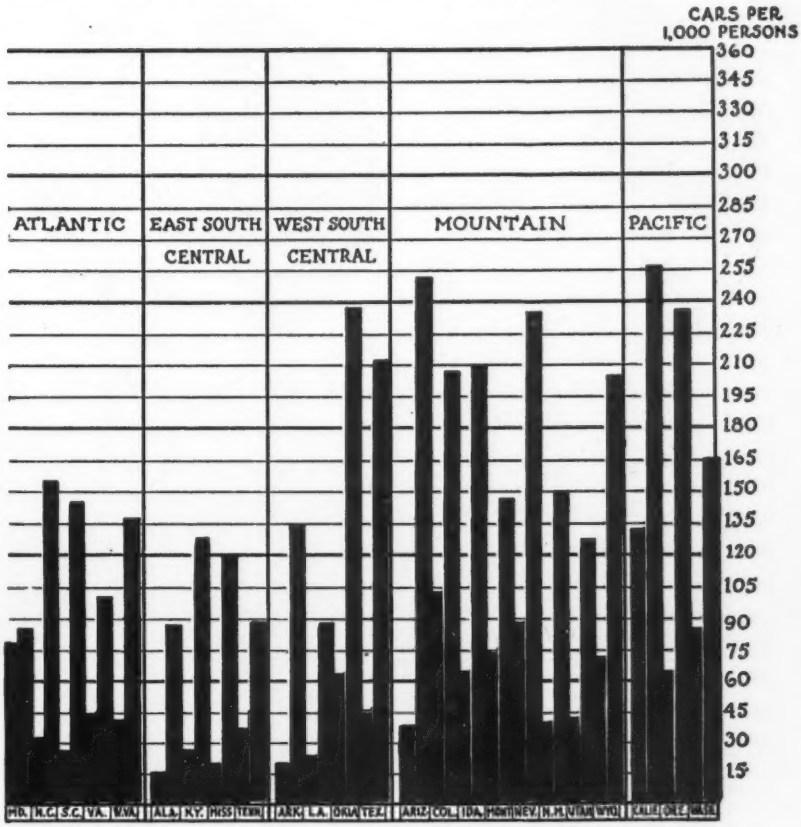
FARMERS' USE OF AUTOMOBILES

(Excerpts from article in Crops and Markets, a publication of U. S. Dept. of Agriculture)

Recent farm surveys by the Division of Farm Management, Bureau of Agricultural Economics, United States Department of Agriculture, have shown how widespread is the use of automobiles among farmers. In an Atlantic coast area, 58 per cent of the farmers had autos; in different areas in the Middle West, 70 to 85 per cent; and in an area in the Palouse region, 86 per cent. The only region

Developed Than That of Cities

127 cars per 1,000 persons in *cities* over 1,000 population
7.8 persons per car in *cities* over 1,000 population



local basis for the census calculation is different from that of the other states. Farm Motor car figures are from Motor List Co., Des Moines, Ia. Population figures are

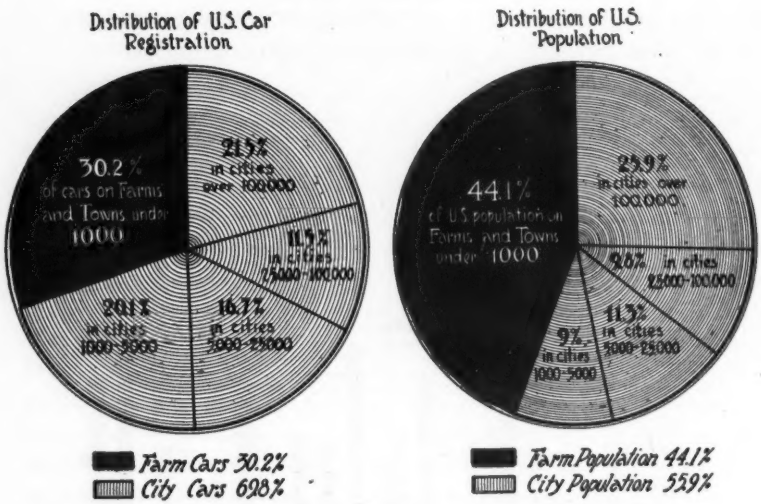
where less than half the farmers owned automobiles was in the dry-farming wheat area, which has been so badly off financially since 1917.

The touring car is the farmer's car of all work, used for everything from hauling milk or feed to hauling the children to a Sunday-school picnic. In all the areas two-thirds or more of the machines reported were touring cars.

Next to touring cars trucks were most used, running up to about one-quarter of all machines in some areas, though less important in others. Roadsters, sedans, and coupes were less frequently reported, rarely totaling one-tenth of all the farmers' machines.

The light makes predominated in all of

Car Use in Relation to Population


Distribution of U.S. Car Registration
30.2% of cars on Farms and Towns under 1000
21.5% in cities over 100,000
11.5% in cities 25,000-100,000
20.1% in cities 1000-5000
16.7% in cities 5000-25000
Farm Cars 30.2%
City Cars 69.8%
Distribution of U.S. Population
44.1% of U.S. population on Farms and Towns under 1000
25.9% in cities over 100,000
9.8% in cities 25,000-100,000
9% in cities 1000-5000
11.3% in cities 5000-25000
Farm Population 44.1%
City Population 55.9%

City Population of 56% Own 70% of the Motor Cars, While Farm Population of 44% Use 30% of the Cars. Towns 1,000-5,000 Have 9% of U. S. Population and 20% of the Automobiles

---

the areas. Over two-thirds of the machines reported were of makes now priced less than $500 f. o. b. factory for touring cars.

Most of the service of these farm-owned cars was devoted directly to the farm business, such use being estimated by farmers in the different areas at two-thirds to nine-tenths of the total use. With the annual cost of operation amounting to between $200 and $300, the cost of the car for pleasure use averaged from $50 to $100 per year.

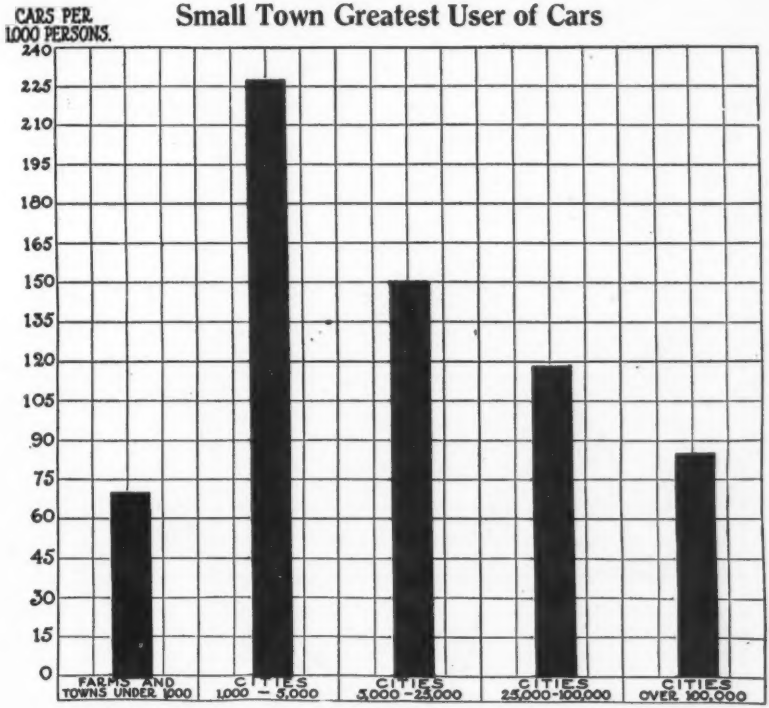
The average prices paid for machines varied in the different areas with differences in the proportions of the different types. The average purchase price of the touring cars was about $700. The average length of life estimated for touring cars varied from seven to eight years in different areas. Since relatively few men can have had much experience with the actual life of an automobile, the estimates of life are not very reliable, but evidently depreciation is an important item in the cost of operating the machines, amounting to nearly as much as all cash costs of operation.

Gas and oil together made up just about one-half of the cash costs of operating the machines; tires, repairs and license fees making up the balance. Relatively few men carried insurance on their cars, hence the average expense for this item was practically negligible.

Table 1 shows the expense of operation for touring cars in the different areas for small-size machines, i. e., those now costing under $500, and machines of medium size, costing $500 to $1,500. In the different areas the average price paid for small machines was about $500 to $600, and for medium size machines from $850 to $1,250. As the machines were purchased through the past eight or nine years, the cost at the present time would be less than that shown, due to the present lower prices for automobiles.

TABLE 1—AVERAGE ANNUAL COSTS OF OPERATING TOURING CARS ON FARMS IN DIFFERENT AREAS, BY SIZE OF MACHINE

	States in which areas were located and size of machine								
	Pennsylvania		Kansas		South Dakota		Montana	Colorado	
	Small cars	Medium cars	Small cars	Medium cars	Small cars	Medium cars	Small cars	Small cars	Medium cars
Average purchase price	$542	$854	$534	$1,230	$603	$1,102	$530	$501	$1,125
Average age in years...	3.9	4.0	4.1	3.6	5.8	5.2	4.8	4.2	4.0
Average estimated life in years.....	7.5	8.3	7.7	8.2	7.4	6.7	7.9	7.5	7.8
Cash costs of operation:									
Gas.....	$63	$63	$62	$64	$44	$28	$51	$57	$73
Oil.....	8	8	9	8	7	6	12	10	9
Tires.....	33	44	26	32	27	43	23	29	59
Repairs.....	25	38	21	24	21	20	27	25	33
License fees.....	10	11	8	11	13	16	9	5	7
Total cash costs.	$139	$164	$126	$139	$112	$113	$122	$126	$181
Depreciation.....	72	103	71	150	81	164	67	67	144
Total costs.....	**$211**	**$267**	**$197**	**$289**	**$193**	**$277**	**$189**	**$193**	**$325**



Motor Car figures from Motor List Co. Population figures based on 1920 Census. Farm population includes towns under 1,000. City population comprises cities over 1,000 persons.

This chart brings out the striking difference in the use of motor cars on farms and in cities of various sizes. It will be noted that there are 230 cars per thousand persons in cities from 1,000 to 5,000 population, motor car density decreasing as the cities increase in size.

3,105,350 Persons Employed in the Automobile Industry

EMPLOYED DIRECTLY		EMPLOYED INDIRECTLY	
Motor vehicle factory workers	318,100	Iron and steel workers	62,000
Parts and accessory factory workers	300,000	Copper, lead, tin, nickel and aluminum workers	13,000
Tire factory workers	114,750	Railroad workers	80,000
Motor vehicle dealers and salesmen	181,000	Plate glass workers	12,000
Supplies, accessories and parts dealers and salesmen	135,000	Tannery and leather workers	10,000
Garage employees	110,000	Woodworkers	25,000
Tire dealers and salesmen	90,000	Upholstering cloth, top and side curtain material workers	20,000
Repair shop employees	345,000	Asbestos workers	500
Professional chauffeurs	470,000	Paint and varnish factory workers	1,000
Professional truck drivers	750,000	Coal miners	2,500
Gasoline refinery and oil workers	60,000		
Automobile financing and insurance	5,500	Total indirectly employed	226,000
Total directly employed	2,879,370	GRAND TOTAL	3,105,350

The figures for the various industries are based on the percent of total output of product consumed by automobile industry. No estimates attempted for the number of people working on curled hair and other forms of padding, road construction work, manufacturing of machine tools and other production equipment, extension of automobile plants, etc.

Automobile Advertising Trend Similar to General Business

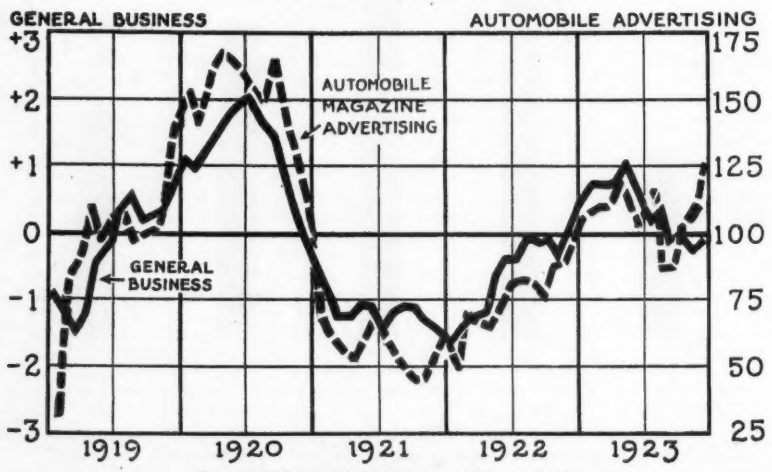
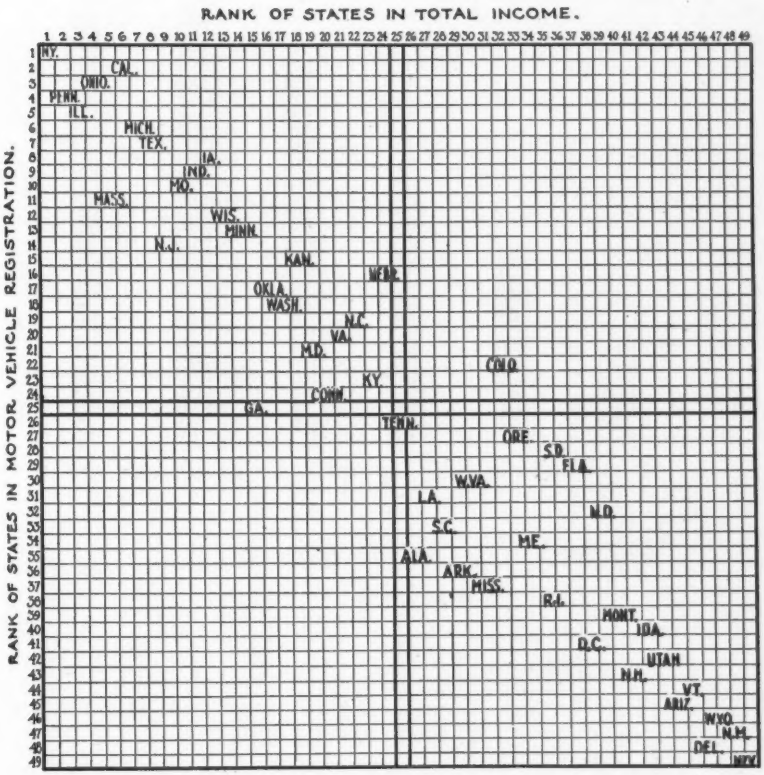


Chart reprinted by permission from Harvard Economic Service, Weekly Letter of March 1, 1924

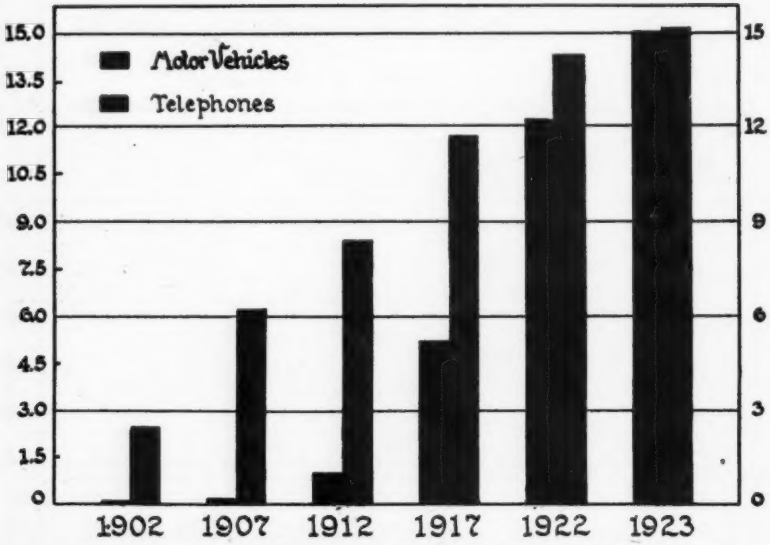
Prosperity Parallels Use of Motor Vehicles



Note that those states which have the highest rank according to total income† are likewise leaders in motor vehicle registration.* The correlation between wealth and automobile use in this comparison is nearly perfect, being .96. New York is first in both rankings. Ohio, California, Pennsylvania, Illinois, Michigan, Texas, and Missouri are all in the first ten in either classification.

†Figures from National Bureau of Economic Research.
*Figures from U. S. Bureau of Public Roads.

15,000,000 Telephones and Motor Vehicles



Motor vehicles have increased in general use during the past few years so that the total registration of 15,092,000 is approximately equal to the number of telephones which is 15,370,000. Growth of both of these products is indicated in the table which follows:

Year	Motor Vehicle Registration†	Number of Telephones*	Year	Motor Vehicle Registration†	Number of Telephones*
1902.....	28,755	2,371,044	1917.....	6,146,617	11,716,520
1907.....	142,061	6,118,578	1922.....	12,238,375	14,346,701
1912.....	944,000	8,729,592	1923.....	15,092,000	15,370,000

†Figures from U. S. Bureau of Public Roads.

*Figures from U. S. Bureau of Census, except 1923 estimated by American Telephone & Telegraph Co.

North Carolina Good Roads Save Gasoline Costs

Figures compiled by North Carolina serve remarkably well to illustrate the value of improved highways to motorists. In the year 1921, 72,000,000 gallons of gasoline were shipped into the state which at that time had a total registration of 142,000 automobiles. This meant an average of 515 gallons of gasoline per automobile. During that year the State Highway Commission took over the entire road system and smoothed up and maintained all of the roads in the state. The following year there were 82,000,000 gallons of gasoline shipped into the state and 182,000 cars registered, with an average of 450 gallons per car; a saving of 65 gallons per automobile per year. At the rate of 25 cents per gallon, which obtained at that time, the money saved each motorist was about $16.25 for the year.—*Automobile Topics.*